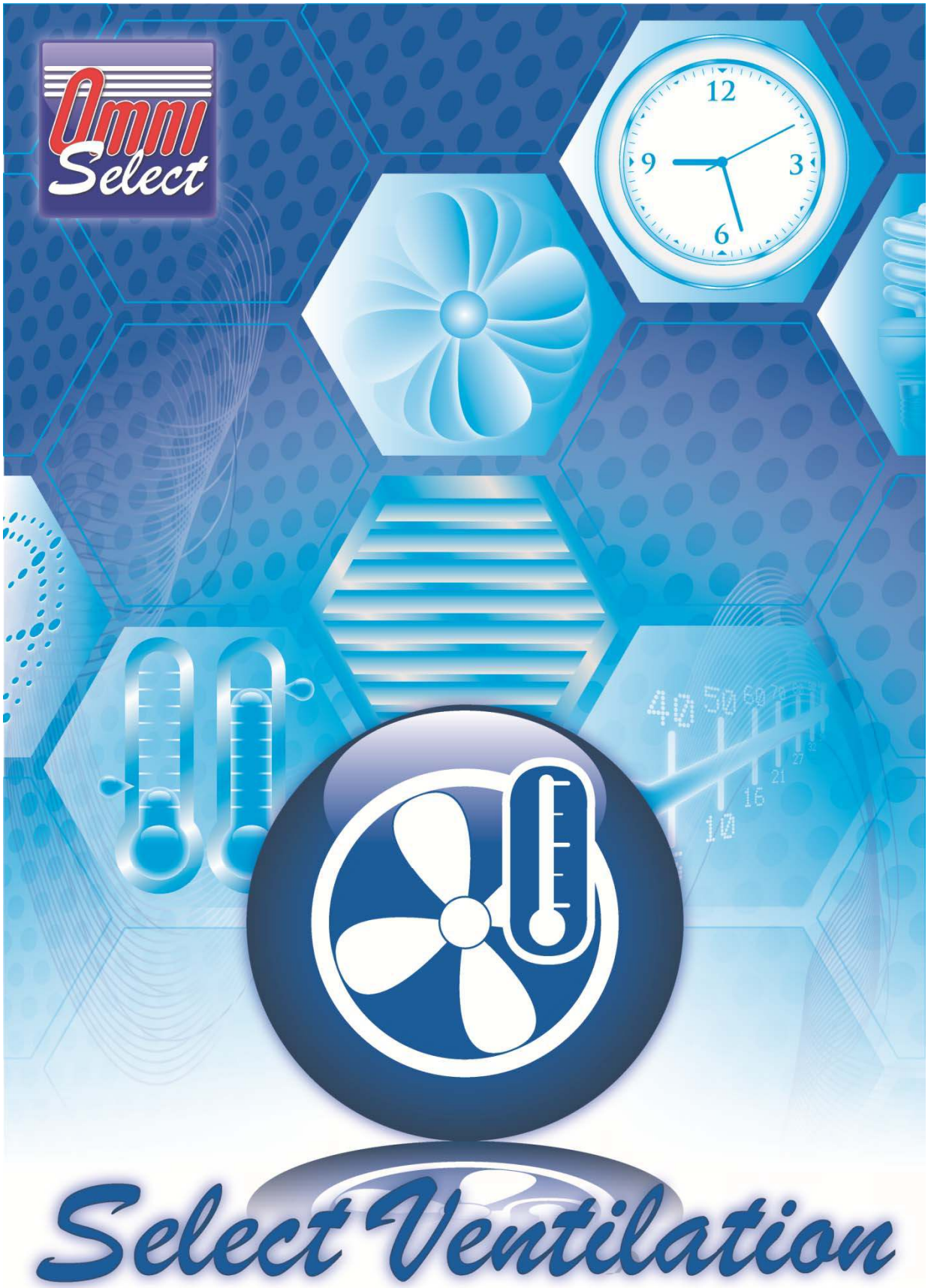
Omni
Select
12
3
6
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Select Ventilation

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20041701
2012-10-17

Limited warranty

Software

Phason Inc. (Phason) warrants for a period of 90 days from the date of purchase that the software product will execute its programming instructions when properly installed on the personal computer or workstation indicated on this package. Phason does not warrant that the operation of the software will be uninterrupted or error free. Should this software product fail to execute its programming instructions during the warranty period, the purchaser's remedy shall be to return the software CD (media) to Phason for replacement. Should Phason be unable to replace the media within a reasonable amount of time, the purchaser's alternate remedy shall be a refund of the purchase price upon return of the product and all copies.

Media

Phason warrants the media upon which this product is recorded to be free from defects in materials and workmanship under normal use for a period of 90 days from the date of purchase. Should the media prove to be defective during the warranty period, the purchaser's remedy shall be to return the media to Phason for replacement. Should Phason be unable to replace the media within a reasonable amount of time, the purchaser's alternate remedy shall be a refund of the purchase price upon return of the product and all copies.

Notice of warranty claims

The purchaser must notify Phason in writing of any warranty claim no later than 30 days after the warranty period expires.

Limitation of warranty

Phason makes no other express warranty, whether written or oral, with respect to this product. Any implied warranty of merchantability or fitness is limited to the 90 days of this written warranty. Some states or provinces do not allow limitations on how long an implied warranty lasts, so the above limitation or exclusion may not apply to you. This warranty gives specific legal rights and you may have other rights, which vary from state to state, or province to province.

Exclusive remedies

The remedies provided above are the purchaser's sole and exclusive remedies. Phason shall not be liable for any direct, indirect, special, incidental, or consequential damages (including lost profit) whether based on warranty, contract, tort, or any other legal theory. Some states or provinces do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

Warranty service

Warranty service may be obtained from the Phason office location indicated in the user manual or service booklet.

Service and technical support

Phason will be happy to answer all technical questions that will help you use your OMNI-Select system. Before contacting Phason, collect the following information:

- A description of the problem
- A description of what you were doing before the problem occurred
- The model(s) and serial number(s) of the devices
- Any messages displayed by the software

My dealer's name: _____

How to contact my dealer:

Street/PO Box _____

City _____

State/Province _____

Zip/Postal _____

Phone _____

Fax _____

E-mail _____

Web site _____

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About the manual

This manual describes the features of the Select™ Ventilation module for OMNI-Select and how to use them. In addition to reading this manual, you should be familiar with the following.

- Microsoft Windows™ – how to perform basic Windows functions such as opening and closing windows, finding and opening files, saving and closing files, as well as using a mouse and keyboard.
- OMNI hardware and equipment – devices such as Power Blocks. You should also be familiar with the equipment connected to them, such as temperature probes, fans, actuators, and so on.

Styles

The following styles are used in the manual.

- All buttons and tabs are **bolded**.
  For example, click **OK** to save the changes.

- All keyboard keys are UPPERCASE.
  For example, press the UP or DOWN key on your keyboard.

- All filenames and directories are in a `monospace` font.
  For example, the reports directory in Windows Vista is `C:\Users\<username>\Documents\phason\OmniSelect\Reports\`.

Hint/tip

This is a hint or tip. It contains helpful information that may make it easier for you to set up or use Select Ventilation.

Note

This is a note. It contains important information that may help you better understand Select Ventilation.

A copy of the manual is also on the OMNI-Select installation CD. The PDF (Portable Document Format) file installs in `C:\Program Files\Phason\OmniSelect\Docs\` during a normal installation. You can view the file by opening it using a PDF viewer.

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Chapter 1: Introducing Select Ventilation

- Introducing Select Ventilation
- Select Ventilation windows

Introducing Select Ventilation

Select Ventilation has the flexibility to satisfy almost every barn type and ventilation strategy. The system fits the site instead of forcing the site to fit the system.

You can configure Select Ventilation for either natural or forced ventilation strategies: tunnel, sidewall forced, curtain, or chimney ventilation systems. The system automatically controls the environment, regardless of the ventilation strategy.

Select Ventilation features

- Automatic, "near real-time" information collection and display
- Easy-to-read status displays
- Easy-to-use charting and reporting tools
- Fail-safe design
- Programmable alarms with notification and logging

Power Blocks

Select Ventilation works with PBx Power Blocks to control equipment according to your programmed settings. There are two current models of PBx Power Blocks; no matter what your ventilation or control strategy is, there is a Power Block for *your* needs.

Features	PBx-10	PBx-11	Notes
Variable AC stages	2	2	*Heat or cool*
Variable DC stages	2	2*	*Heat or cool*
General-purpose relays	6	9	*Heat, cool, duty cycle, curtain, timed event, or actuator*
Alarm relay	✓	✓	-
Automatic 4-probe temperature averaging	✓	-	*Requires additional probes*
Functions available at the control	✓	✓	*Group set point, test, override, and actuator calibration*
Power-failure memory protection	✓	✓	-
Wireless adapter compatibility	✓	✓	*Phason Wireless Adapter*
Four-character display and status LEDs	✓	✓	-
30-foot temperature probe	✓	✓	*Extendable to 500 feet*
Rugged enclosure	✓	✓	*Corrosion resistant, water resistant, and fire retardant*
CSA approval	✓	✓	-
Two-year limited warranty	✓	✓	-
** The DC stages on the PBx-11 are not independent; they follow the settings of the AC stages.*			

Use the variable AC stages for controlling variable speed fans, heat mats, or lamps. Use the variable DC stages for controlling variable frequency drives (VFDs).

Use relays for single-stage heating or cooling, timed events for lighting, or duty cycles for misting. Power Block relays can control anything at your site that needs to switch ON or OFF based on *temperature*, *time*, or *duration*.

Previous generation Power Blocks, PB-1 to PB-6, are no longer manufactured, but Select Ventilation *does* work with them.

Customizable reports and information display

- **Ventilation Temperature Reports** display detailed ambient and set point temperature history.
- **Ventilation Status Reports** display a mixed graphical and textual "information snapshot" of the selected Power Block. The report includes a one-week temperature summary and current configuration and settings.
- **Ventilation Settings History Reports** are similar to *Ventilation Status Reports*, but do not include the temperature summary. Settings History Reports also allow you to display historical configuration and settings.
- **PBx Relay Runtime Reports** display the amount of time, in hours: minutes: seconds, each relay was on.
- **Power Block status viewer** displays the status of a Power Block's variable and relay stages. The status viewer is an important monitoring tool you should check regularly.

- **Temperature charts** display ambient and set point temperatures for a Power Block. Temperature charts are useful for tracking down problems in a zone, analyzing the effects of different ventilation strategies, and monitoring conditions. Temperature charts display as line charts.

For more information about Select Ventilation viewers, charts, and reports, read **Chapter 3: Analyzing data** on page 63.

Fail-safe design

If the computer or communication between the computer and the Power Blocks fails, Power Blocks will continue to operate at the last settings received before the failure. In other words, Power Blocks will continue to respond to changes in room temperature and continue to adjust equipment as the temperature changes. When the problem has been fixed, all settings will be updated and synchronized with the computer.

Alarm notification and logging

When there is an alarm condition, Select Ventilation displays a message in the *Communications Center*. Select Ventilation logs all alarm conditions; you can view or print them from the *Alarm Log Report*. For more information about alarm settings, read **Programming alarms** on page 42.

You can connect a siren or other external alarm system to the alarm relay on a Power Block. For more information, read the **Power Block installation guide**.

Select Ventilation windows

The following section is an overview of the main Select Ventilation windows.

Communication Center

The Communication Center displays communication, status, and alarm messages from OMNI-Select modules and devices. Check the Communication Center regularly to ensure systems functioning normally and to see if there are problems or potential problems.

The Communication Center is the only area of OMNI-Select that is available to all users, regardless of their access. The Communication Center is also the gateway to the Main window, where you can access settings, configuration, and reports.

A This area lists your devices and their status. To see a list of communication and system messages for a specific device, click on that device.

B This button opens a window that displays all messages for all devices.

C This button opens a window that displays version information.

D This button opens the OMNI-Select login window, which is where you enter your username and password to access other areas of the system.

E This button opens *Help files* window, which is where you can open any of the user manuals for the modules you have installed.

For more information about monitoring the communication center or logging in to OMNI-Select, see the section in the **OMNI-Select user manual**.

Configuration window

The *Configuration* window is where you configure the structure of your site, as well as Select Ventilation options you configure seldom or only once at the beginning.

A This button displays the configuration window.

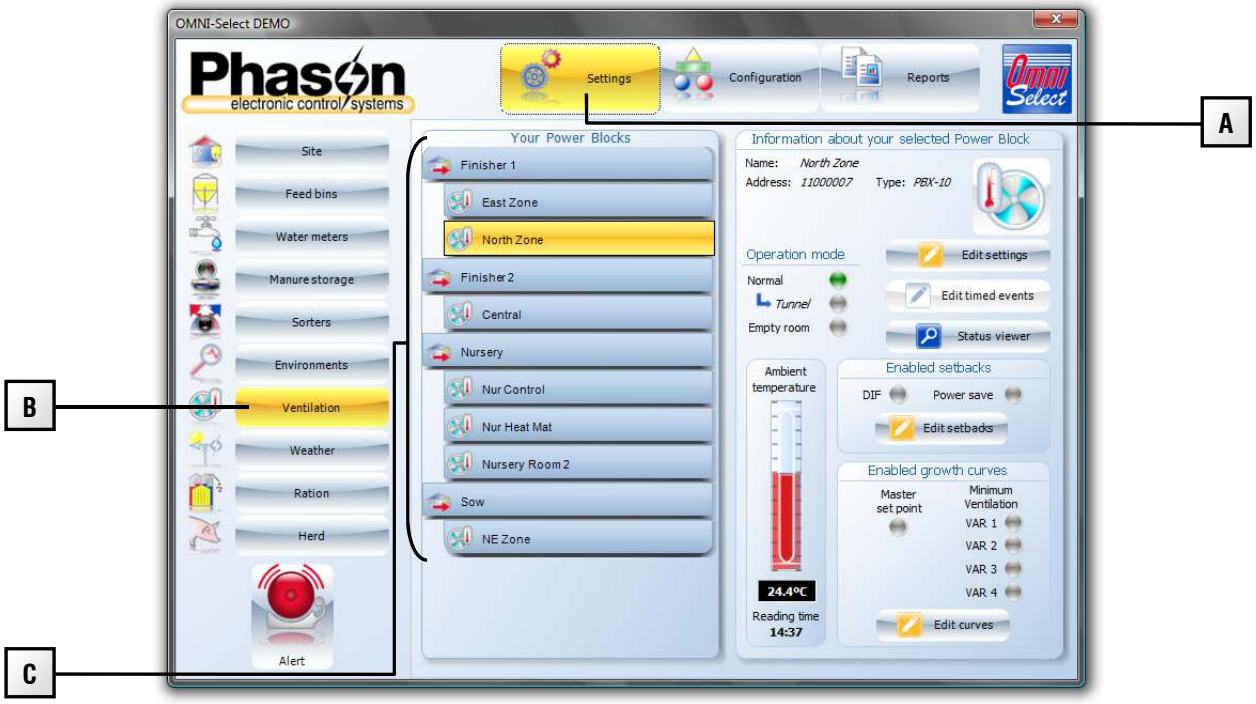
B This button displays the configuration for Select Ventilation.

C This is a list of Power Blocks in each building at your site and where you select the device you want to configure.

For more information about the *Configuration* window and configuring Power Blocks, read **Chapter 2: Configuring Select Ventilation** on page 9.

Settings window

The *Settings* window is where you program Power Blocks and equipment settings.



A This button displays the *Settings* window.

B This button displays the settings for Select Ventilation.

C This is a list of Power Blocks in each building at your site and where you select the device you want to set up.

For more information about the *Settings* window and setting up Power Blocks, read **What you need to know before programming Power Blocks** on page 21.

Reports window

A This button displays the reports window.

B This button displays the available Select Ventilation reports.

C This is where you select the report and details.

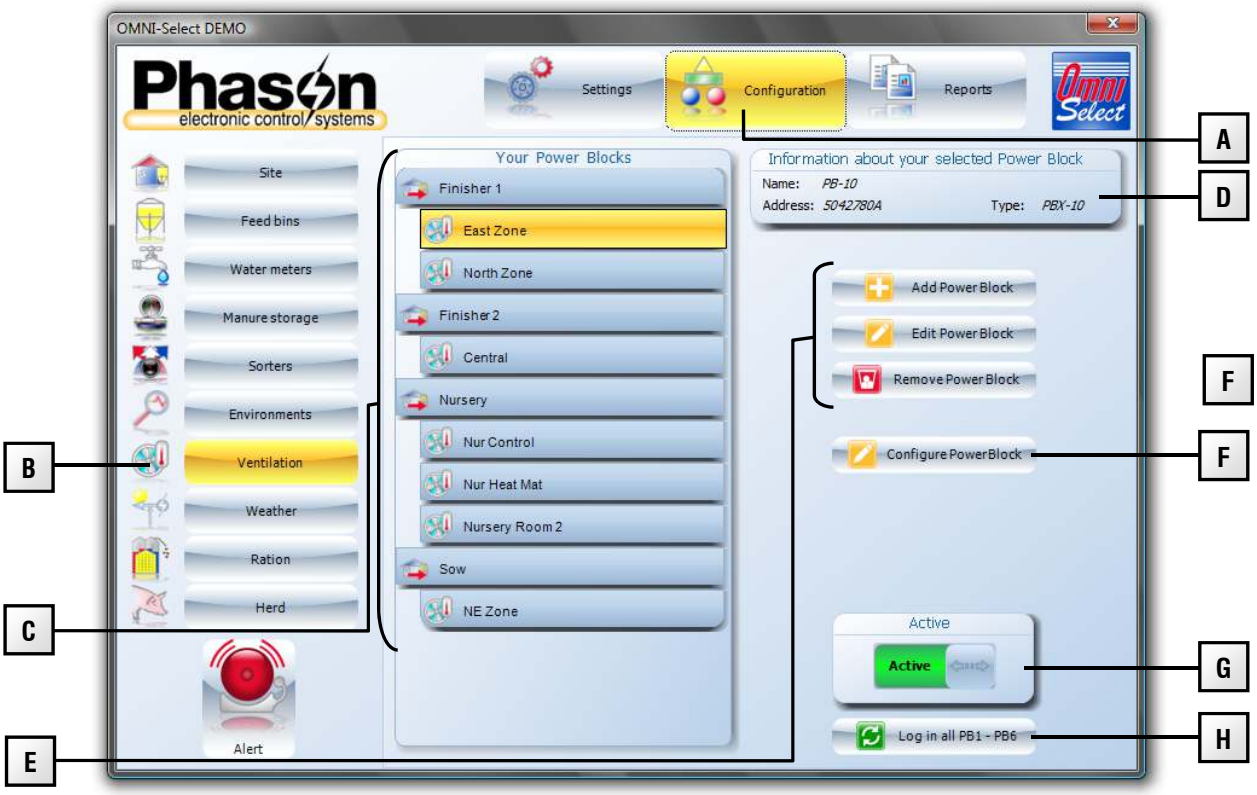
For more information about the *Reports* window, read **Creating reports** on page 74.

Chapter 2: Configuring Select Ventilation

- What you need to know before configuring Select Ventilation
- Configuring Power Blocks
- What you need to know before programming Power Blocks
- Programming Power Block settings

What you need to know before configuring Select Ventilation

The *Configuration* window is where you configure the structure of your site, as well as Power Block options you configure seldom or only once at the beginning.



A This button displays the *Configuration* window.

B This button displays the configuration for Select Ventilation.

C This is a list of Power Blocks in each building at your site and where you select the device you want to configure.

D This is the name, address, and type of the selected Power Block.

E The top two buttons open the *Power Block description* window, which is where you add a new Power Block or edit the selected Power Block. The bottom button removes the selected Power Block from your system.

F This button opens the *Power Block configuration* window, which is where you configure the selected Power Block.

G This is where you activate or deactivate the selected Power Block.

H This button logs in all previous generation, PB-1 to PB-6 Power Blocks. You need to login any PB-1 to PB-6 Power Blocks you add before they can become part of your system.

The electrical frequency setting (Hz) in the site configuration window affects how PBX Power Blocks operate. You need to make sure you have the correct frequency selected. For more information, read the configuration section of the **OMNI Select user manual**.

Adding, editing, and removing Power Blocks

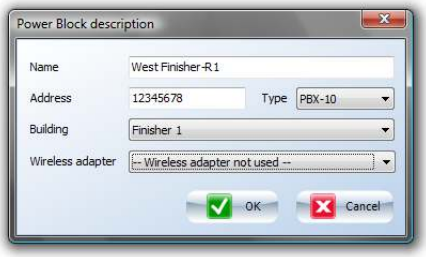
Select Ventilation identifies Power Blocks using an *address*. An address is a unique code the software uses to locate and identify each device. Each Power Block is programmed with an address before it leaves the factory. To locate the address for a specific Power Block, open the cover and then look on the back of the display or the microboard. For more information, read the installation guide for your Power Block.

Because remembering unique codes to identify Power Blocks is all but impossible for us humans, Select Ventilation makes it easier by allowing you to give each device a name. When giving a device a name, try to make the name as descriptive and useful as possible. For example, *North-Room 1*, *North-Room 2*, *South-Room 1*, and *South-Room 2* are more descriptive and useful than *PB A*, *PB B*, *PB C*, and so on.

- ◇ When you add a new Power Block, none of the relays or variable stages are enabled. To enable stages, you must configure the Power Block. For more information, read **Configuring Power Blocks** on page 13.
- ◇ Before you can add Power Blocks, you must have at least one building. For information about adding buildings, see the **OMNI-Select user manual**.

To add a Power Block

1. In the main window, click **Configuration**, and then **Ventilation**.
2. Click **Add Power Block**.
   The *Power Block description* window displays.



3. Beside *Name*, type a descriptive name for the Power Block.
4. Beside *Address*, type the address of the Power Block, *exactly as it appears on the product*. For information about where to find the address, see the installation guide for your Power Block.
5. Beside *Type*, select the model of the Power Block.
6. Beside *Building*, select the building in which the Power Block is located.
7. If you have a PBx Power Block that is connected to a Phason Wireless Adapter (PWA), beside *Wireless adapter*, select the address of the PWA.
8. Click **OK** to save the information and return to the *Configuration* window.

- When you add a *PB-1 to PB-6 Power Block*, you need to log in the Power Block before Select Ventilation can use it. For more information, read **Logging in new Power Blocks** on page 12.
- PB-1 to PB-6 Power Blocks cannot use Phason wireless adapters. Phason wireless adapters are compatible only with PBx Power Blocks.
- When you add a Power Block, its status is automatically set to *active*. If you want the Power Block to be inactive, follow the instructions for **Activating and deactivating Power Blocks** on page 13.

To edit a Power Block

1. In the main window, click **Configuration**, and then **Ventilation**.
2. Below *Your Power Blocks*, select the Power Block you want to edit and then click **Edit Power Block**.
   The *Power Block description* window displays.

3. Make the changes.
   - Beside *Name*, type a descriptive name (maximum 15 characters) for the device.
   - Beside *Address*, type the address of the device, exactly as it appears on the product. For information about where to find the address, see the **Power Block installation guide**.
   - Beside *Type*, select the model of the Power Block.
   - Beside *Building*, select the building in which the device is located.
   - If you have a PBx Power Block that is connected to a Phason Wireless Adapter (PWA), beside *Wireless adapter*, select the address of the PWA.
4. Click **OK** to save the device information and return to the *Configuration* window.

To remove a Power Block

1. In the main window, click **Configuration**, and then **Ventilation**.
2. Below *Your Power Blocks*, select the Power Block you want to remove and then click **Remove Power Block**.
   A warning message displays.
3. To remove the Power Block, click **Yes**. To cancel and return to the previous window, click **No**.

Logging in new Power Blocks

When you add, replace, or change the address of a PB-1 to PB-6 Power Block, you need to login that Power Block before Select Ventilation can use it. You do not need to login PBx Power Blocks; they login automatically.

To activate or deactivate a Power Block

1. In the main window, click **Configuration**, and then **Ventilation**.
2. Below *Your Power Blocks*, select the Power Block you want to activate or deactivate.
3. Below *Active*, click and drag the slider to the status you want.

Activating and deactivating Power Blocks

When you add a Power Block, its status is automatically set to active. When a Power Block is *active*, you can configure and set up the Power Block, as well as view and print charts and reports for it.

When a Power Block is *inactive*, you do not send or receive data from it. You can view and print charts and reports for it using existing data.

To activate or deactivate a Power Block

1. In the main window, click **Configuration**, and then **Ventilation**.
2. Below *Your Power Blocks*, select the Power Block you want to activate or deactivate.
3. Below *Active*, click and drag the slider to the status you want.

Configuring Power Blocks

The difference between configuring and programming Power Blocks is that configuring is telling Select Ventilation *what* equipment is connected to each stage or relay, while programming is telling the software *how* to control it.

When you add a new Power Block, none of the relays or variable stages are enabled. To enable stages, you must configure the Power Block. Configuring Power Blocks means selecting the function—actuator, curtain, and so on—for each variable stage and relay. To put it another way, configuring is telling Select Ventilation what is connected to each stage or relay on the Power Block.

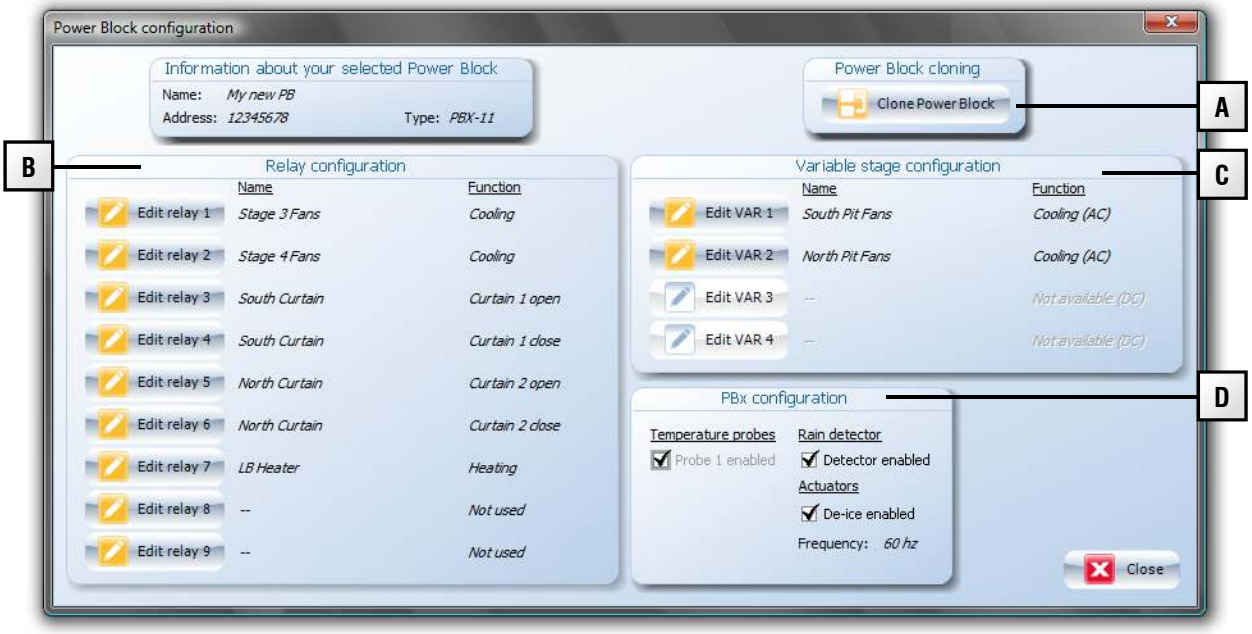
Features	PBx-10	PBx-11	Notes
Variable AC stages	2	2	*Heat or cool*
Variable DC stages	2	2*	*Heat or cool*
General-purpose relays	6	9	*Heat, cool, duty cycle, curtain, timed event, or actuator*
Alarm relay	✓	✓	-
Automatic 4-probe temperature averaging	✓	-	*Requires additional probes*
Functions available at the control	✓	✓	*Group set point, test, override, and actuator calibration*
Power-failure memory protection	✓	✓	-
Wireless adapter compatibility	✓	✓	*Phason model PWA-MULTI*
Four-character display and status LEDs	✓	✓	-
30-foot temperature probe	✓	✓	*Extendable to 500 feet*
Rugged enclosure	✓	✓	*Corrosion resistant, water resistant, and fire retardant*
CSA approval	✓	✓	-
Two-year limited warranty	✓	✓	-
** The DC stages on the PBx-11 are not independent; they follow the settings of the AC stages.*			

Configuring Power Blocks contains the following topics.

- Cloning Power Blocks (on page 15)
- Enabling additional probes, deicing, and rain detection (on page 16)
- Configuring variable stages (on page 18)
- Configuring relays for actuators (on page 20)
- Configuring relays for curtain control (on page 22)
- Configuring relays for heating, cooling, and duty cycle (on page 24)
- Configuring relays for timed events (on page 26)
- Configuring relays for disconnecting DC variable stages (on page 28)

Use the **Installation and configuration worksheets** when configuring Power Blocks. The worksheets are in the back of the **Power Block installation guide**.

The *Power Block configuration* window is where you configure Power Blocks.



A This button opens the *Power Block cloning* window, which is where you can copy configuration and settings from another Power Block.

B These buttons open the *Relay configuration* window, which is where you select the function and enter a description for the relays.

C These buttons open the *Variable stage configuration* window, which is where you select the function and enter a description for the variable stages.

D This is where you configure additional items for PBx Power Blocks.

Cloning Power Blocks

Cloning Power Blocks allows you to copy configuration and settings from one Power Block to another. You can clone an existing Power Block and then use that as a starting point when configuring a new one.

Ideally, you want to clone a Power Block that is the same model as the one you want to configure. For example, clone an existing PBx-10 when you need to configure a new PBx-10.

If you clone a Power Block that is different, only the configuration and settings that are valid will copy. For example, if you clone a PBx-10, which has six relays, to a PBx-11, which has nine relays, the additional three relays in the PBx-11 will remain un-configured. If you clone a PBx-11 to a PBx-10, equipment and relays that do not exist will be ignored and dropped.

You cannot cancel or undo a Power Block cloning.

To clone a Power Block

1. In the main window, click Configuration and then Ventilation.
2. Below *Your Power Blocks*, select the Power Block you want to configure and then click **Configure Power Block**.
   The *Power Block configuration* window displays.
3. Click **Clone Power Block**.
   The *Power Block cloning* window displays.

4. Select the Power Block you want to copy.
5. Click **OK** to copy the configuration and return to the *Power Block configuration* window.

Enabling additional probes, deicing, and rain detection

If you are configuring *PBx Power Blocks*, you have the option to configure additional probes, actuator deicing, and rain detection.

PBx-10 temperature probes

The PBx-10 has four temperature probe terminals, with the ability to average temperatures of all connected probes to provide a more balanced reading. By default, only probe 1 is enabled.

If you are installing a Phason Rain Sensor to a PBx-10, you can only install three additional probes. This is because the sensor plugs into the probe 2 terminal.

Actuator deicing

Actuator deicing opens the actuator by 10% when it has not moved for 2 hours. After the actuator moves the 10%, it moves back to its proper position. By default, actuator icing is *not enabled.*

Rain detection

By connecting an optional Phason Rain Sensor to a PBx Power Block, you can detect rainfall and automatically close curtains and actuators when it is raining. By default, rain detection is *not enabled.*

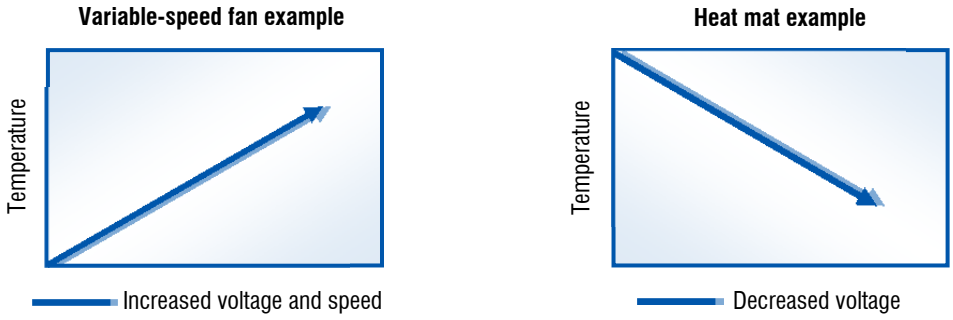
After you have enabled rain detection, you need to configure the curtain and/or actuator relays you want to close when it is raining. Follow the instructions for configuring curtain and actuator relays.

To enable additional probes, actuator deicing, and rain detection

1. In the main window, click **Configuration**, and then **Ventilation**.
2. Below *Your Power Blocks*, select the Power Block you want to configure and then click **Configure Power Block**.
   The *Power Block configuration* window displays.
3. Below PBx configuration, select the options you want to configure.
   - To enable additional te's mperature probes for a PBx-10, select the probes **you have connected**. Do not select probes that are not connected to the control.
   - To enable actuator deicing, select *Deice enabled.*
   - To enable rain detection (if you have a Phason Rain Sensor installed), select *Detector enabled.*
4. Follow the instructions for configuring relays or variable stages, or click **Close** to return to the *Configuration* window
   - Configuring variable stages (on page 18)
   - Configuring relays for actuators (on page 20)
   - Configuring relays for curtain control (on page 22)
   - Configuring relays for heating, cooling, and duty cycle (on page 24)
   - Configuring relays for timed events (on page 26)
   - Configuring relays for disconnecting DC variable stages (on page 28)

Configuring variable stages

Variable stages control equipment that operates with gradually increasing voltage, such as variable speed fans, or gradually decreasing voltage, such as heat mats. For more information about how variable stages work, read **Programming variable stages** on page 46.



Configuring variable stages means:

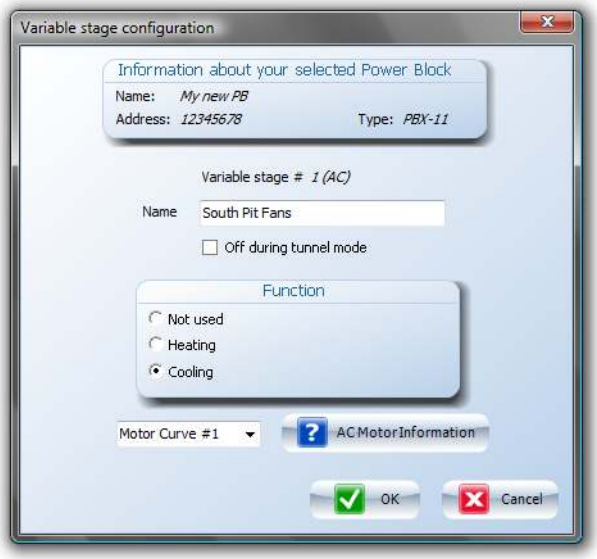
- **Entering a description for the stage**
  A good description helps you identify the stage more easily.
- **Selecting the function**
  Not used, heating, or cooling
- **Enabling tunnel mode (if required)**
  For more information about tunnel mode, read **Programming tunnel mode** on page 34.
- **Selecting a motor curve (PBx AC cooling stages only)**
  For more information about motor curves read **Appendix B: Motor curves** on page 90.

Only functions that are available for the model of Power Block will display. Only options that are available for the selected function will display.
For example, motor curve selection will not display until you select *Cooling* for an AC variable stage.

Use the **Installation and configuration worksheets** when configuring Power Blocks. The worksheets are in the back of the **Power Block installation guide**.

To configure variable stages

1. In the main window, click **Configuration**, and then **Ventilation**.
2. Below *Your Power Blocks*, select the Power Block you want to configure and then click **Configure Power Block**.
   The *Power Block configuration* window displays.
3. Click **Edit VAR 1** (or VAR 2 to 4 if you are configuring one of the other variable stages).
   The *Variable stage configuration* window displays.



4. Configure the variable stage.
   - Beside *Name*, type a descriptive name for the stage.
   - Below *Function*, select the function of the stage.
   - If you are using tunnel mode and want this variable stage off, select *Off during tunnel mode*.
   - If you are configuring an AC cooling stage, select the recommended motor curve.
5. Click **OK** to save the changes and return to the *Power Block configuration* window.
6. If required, repeat steps 3 to 5 for variable stages 2 to 4.
7. Follow the instructions for configuring relays, *or* click **Close** to return to the *Configuration* window.
   - Enabling additional probes, deicing, and rain detection (on page 16)
   - Configuring relays for actuators (on page 20)
   - Configuring relays for curtain control (on page 22)
   - Configuring relays for heating, cooling, and duty cycle (on page 24)
   - Configuring relays for timed events (on page 26)
   - Configuring relays for disconnecting DC variable stages (on page 28)

Configuring relays for actuators

Each actuator you connect requires one relay for opening *and* one for closing.

- Power Blocks PBx-10, PB-1, and PB-3 can control **one actuator**.
- Power Blocks PBx-11, PB-2, PB-4, and PB-5 can control **two actuators**.

Configuring relays for actuators means:

- **Selecting the relays**
- **Entering a descriptive name**
  A good description helps you identify the stage more easily.
- **Enabling tunnel mode (if required)**
  For more information about tunnel mode, read **Programming tunnel mode** on page 34.
- **Enabling rain detection (if required)**
  For more information about rain detection, read **Enabling additional probes, deicing, and rain detection** on page 16.

- ◇ Because actuators require specific pairs of relays, configure actuator relays before configuring other relays.
- ◇ Use the **Installation and configuration worksheets** when configuring Power Blocks. The worksheets are in the back of the **Power Block installation guide**.
- ◇ For more information about actuators, read **Programming relays for actuator control** on page 49.

For models PB-1 to PB-5 only

- ◇ To enable the actuator relays, you must have the jumpers in place on the circuit board. When the jumper is in place, you cannot configure the relay set for any other purpose.
- ◇ Calibrate the actuator before programming it. For more information, read the **Power Block installation guide**.
- ◇ To disable actuator relays so you can configure them for other uses, remove the jumpers. For more information, read the actuator section of the **Power Block installation guide**.

To configure relays for actuators

1. In the main window, click **Configuration**, and then **Ventilation**.
2. Below *Your Power Blocks*, select the Power Block you want to configure and then click **Configure Power Block**.
   The *Power Block configuration* window displays.

3. Click **Edit relay 4** for actuator 1, *or* **Edit relay 6** for actuator 2.
   The *Relay configuration* window displays.

4. Select *Actuator 1*.
5. Beside *Name*, type a descriptive name for the actuator.
6. If you are using tunnel mode, select *Closed during tunnel mode*.
7. If the actuator needs to close when it is raining, select *Closed when raining*. This option is available only if you have a Phason Rain Sensor connected.
8. Click **OK** to save the changes and return to the *Power Block configuration* window.
9. If required, repeat steps 3 to 8 for actuator 2.
10. Follow the instructions for configuring other relays or variable stages, or click **Close** to return to the *Configuration* window

    - Enabling additional probes, deicing, and rain detection (on page 16)
    - Configuring variable stages (on page 18)
    - Configuring relays for curtain control (on page 22)
    - Configuring relays for heating, cooling, and duty cycle (on page 24)
    - Configuring relays for timed events (on page 26)
    - Configuring relays for disconnecting DC variable stages (on page 28)

Configuring relays for curtain control

Curtains are usually controlled by equipment called curtain machines, which are sometimes referred to as *winches*. Curtains are opened to let in more air, or closed to let in less air. The theory behind curtain control is *more air cools the building*.

Each curtain machine requires two relays: one for opening the curtain, one for closing the curtain. Configuring relays for curtain control means:

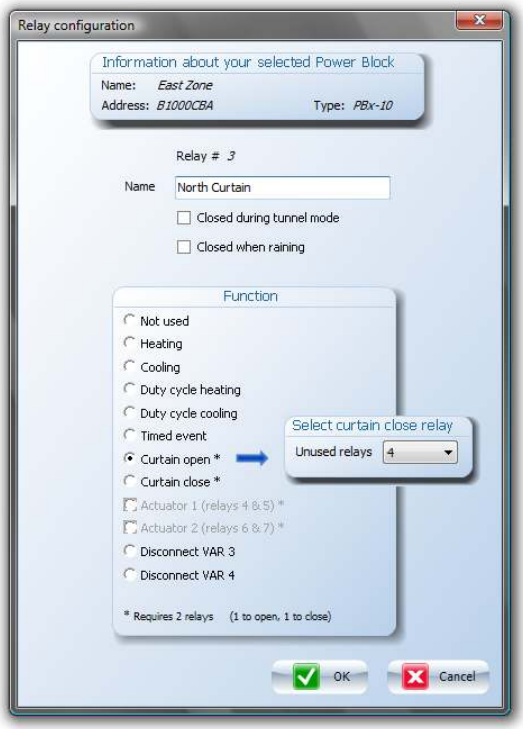
- **Selecting the relays**
- **Entering a descriptive name**
  A good description helps you identify the stage more easily.
- **Enabling tunnel mode (if required)**
  For more information about tunnel mode, read **Programming tunnel mode** on page 34.
- **Enabling rain detection (if required)**
  For more information about rain detection, read **Enabling additional probes, deicing, and rain detection** on page 16.

- Use the **Installation and configuration worksheets** when configuring Power Blocks. The worksheets are in the back of the **Power Block installation guide**.
- For more information about curtain control, read **Programming relays for curtain control** on page 53.

To configure relays for curtains

1. In the main window, click **Configuration**, and then **Ventilation**.
2. Below *Your Power Blocks*, select the Power Block you want to configure and then click **Configure Power Block**.
   The *Power Block configuration* window displays.
3. Click **Edit relay** for the relay you want to configure as the curtain open relay.

The *Relay configuration* window displays.



4. Select *Curtain open*.
   The window updates and asks you to select the close relay.

   If there is only one relay available, an *Information* window displays. Read the information and then click **OK**. Follow the instructions from the window.
5. Beside *Unused relays*, select a relay to use for closing the curtain.
6. Beside *Name*, type a descriptive name for the curtain.
7. If you are using tunnel mode, select *Closed during tunnel mode*.
8. If the curtain needs to close when it is raining, select *Closed when raining*. This option is available only if you have a Phason Rain Sensor connected.
9. Click **OK** to save the changes and return to the *Power Block configuration* window.
10. If required, repeat steps 3 to 9 for other relays you want to configure for curtain control.
11. Follow the instructions for configuring other relays or variable stages, or click **Close** to return to the *Configuration* window

    - Enabling additional probes, deicing, and rain detection (on page 16)
    - Configuring variable stages (on page 18)
    - Configuring relays for actuators (on page 20)
    - Configuring relays for heating, cooling, and duty cycle (on page 24)
    - Configuring relays for timed events (on page 26)
    - Configuring relays for disconnecting DC variable stages (on page 28)

Configuring relays for heating, cooling, and duty cycle

Relays configured for *heating* can control equipment such as electric or gas heaters that can be either on or off. The relays switch on when the temperature drops below the set point and off when it rises above.

Relays configured for *cooling* can control single-speed fans, misters, or other cooling equipment that can be either on or off. The relays switch on when the temperature rises above the set point and off when it drops below.

Relays configured for *duty cycle* control equipment as described above, but also use on durations and off durations.

Configuring relays means:

- **Selecting the relay function**
  Heating, cooling, duty cycle heating, or duty cycle cooling
- **Entering a descriptive name**
  A good description helps you identify the stage more easily.
- **Enabling tunnel mode (if required)**
  For more information about tunnel mode, read **Programming tunnel mode** on page 34.

- Use the **Installation and configuration worksheets** when configuring Power Blocks. The worksheets are in the back of the **Power Block installation guide**.
- For more information about heating, cooling, or duty cycles, read **Programming heating, cooling, and duty-cycle relays** on page 56.

To configure relays for single-stage heating and cooling

1. In the main window, click **Configuration**, and then **Ventilation**.
2. Below *Your Power Blocks*, select the Power Block you want to configure and then click **Configure Power Block**.
   The *Power Block configuration* window displays.
3. Click **Edit relay** for the relay you want to configure.

The *Relay configuration* window displays.

4. Select one of the options: *Heating*, *Cooling*, *Duty cycle healing*, or *Duty cycle cooling*.
   The window updates.
5. Beside *Name*, type a descriptive name for the relay.
6. If you are using tunnel mode, select *Off during tunnel mode*. This function is available only for cooling and duty cycle cooling.
7. Click **OK** to save the changes and return to the *Power Block configuration* window.
8. If required, repeat steps 3 to 8 for other relays you want to configure for heating or cooling.
9. Follow the instructions for configuring other relays or variable stages, or click **Close** to return to the *Configuration* window

   - Enabling additional probes, deicing, and rain detection (on page 16)
   - Configuring variable stages (on page 18)
   - Configuring relays for actuators (on page 20)
   - Configuring relays for curtain control (on page 22)
   - Configuring relays for timed events (on page 26)
   - Configuring relays for disconnecting DC variable stages (on page 28)

Configuring relays for timed events

Relays configured for timed events can be used to switch lights on and off or control equipment that must operate at specific times each day, regardless of temperature.

An event is a switch from *on* to *off*, or from *off* to *on*. For example, switching the yard lights on at 8:00 PM and off at 7:00 AM is two events.

Configuring relays for timed events means selecting the timed event function and entering a descriptive name.

- Use the **Installation and configuration worksheets** when configuring Power Blocks. The worksheets are in the back of the **Power Block installation guide**.
- For more information about timed events, read **Programming timed events** on page 59.

- Each PBx Power Block can store up to 250 events, no matter how many relays are configured.
- Timed events for PBx Power Blocks are stored on the Power Block and do not rely on the software for timing. This means the timed events will function even if there is no communication with the software.
- Timed events for PB-1 to PB-6 Power Blocks are stored in the software. This means timed events will function only if there is communication with the software.

To configure relays for timed events

1. In the main window, click **Configuration**, and then **Ventilation**.
2. Below *Your Power Blocks*, select the Power Block you want to configure and then click **Configure Power Block**.
   The *Power Block configuration* window displays.
3. Click **Edit relay** for the relay you want to configure.

The *Relay configuration* window displays.

4. Select *Timed event*.
   The window updates.
5. Beside *Name*, type a descriptive name for the relay.
6. Click **OK** to save the changes and return to the *Power Block configuration* window.
7. If required, repeat steps 3 to 8 for other relays you want to configure for timed events.
8. Follow the instructions for configuring other relays or variable stages, or click **Close** to return to the *Configuration* window

   - Enabling additional probes, deicing, and rain detection (on page 16)
   - Configuring variable stages (on page 18)
   - Configuring relays for actuators (on page 20)
   - Configuring relays for curtain control (on page 22)
   - Configuring relays for heating, cooling, and duty cycle (on page 24)
   - Configuring relays for disconnecting DC variable stages (on page 28)

Configuring relays for disconnecting DC variable stages

This section is for PBx Power Blocks only.

Many variable frequency drives require a disconnect relay to start and stop operation. When configured as a disconnect relay, the relay switches off when the DC stage it is assigned to is off.

Configuring relays for disconnecting DC variable stages means selecting the function and entering a descriptive name.

Use the **Installation and configuration worksheets** when configuring Power Blocks. The worksheets are in the back of the **Power Block installation guide**..

To configure relays for disconnecting DC variable stages

1. In the main window, click **Configuration**, and then **Ventilation**.
2. Below *Your Power Blocks*, select the Power Block you want to configure and then click **Configure Power Block**.
   The *Power Block configuration* window displays.
3. Click **Edit relay** for the relay you want to configure.
   The *Relay configuration* window displays.

4. Select *Disconnect* for one of the DC variable stages.
   The window updates.
5. Beside *Name*, type a descriptive name for the relay.
6. Click **OK** to save the changes and return to the *Power Block configuration* window.
7. Follow the instructions for configuring other relays or variable stages, or click **Close** to return to the *Configuration* window
   - Enabling additional probes, deicing, and rain detection (on page 16)
   - Configuring variable stages (on page 18)
   - Configuring relays for actuators (on page 20)
   - Configuring relays for curtain control (on page 22)
   - Configuring relays for heating, cooling, and duty cycle (on page 24)
   - Configuring relays for timed events (on page 26)

What you need to know before programming Power Blocks

The difference between configuring and programming Power Blocks is that configuring is telling Select Ventilation *what* equipment is connected to each stage or relay, while programming is telling the software *how* to control it.

To simplify things, we can divide the programming settings into two groups: *Power Block settings* and *equipment settings*.

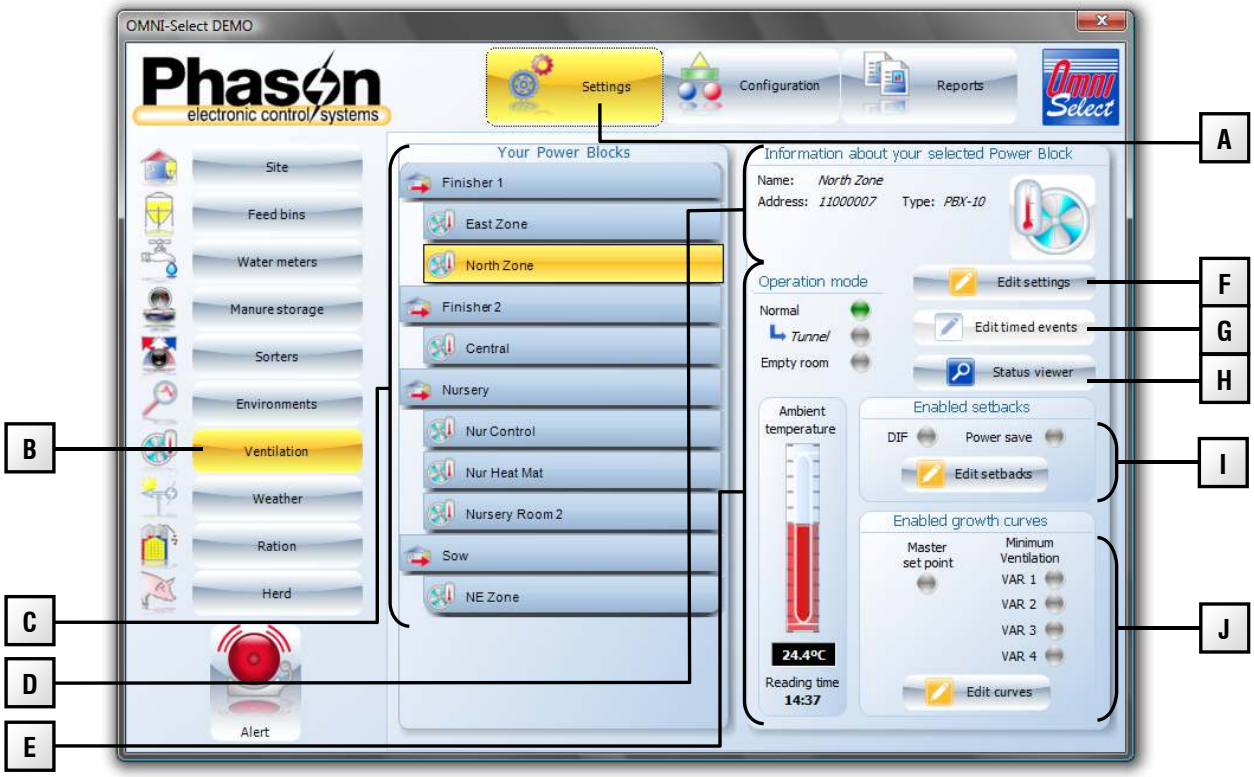
- **Power Block settings** apply to everything the Power Block does and controls (in other words, all the equipment connected to it). Power Block settings include the master set point, alarm settings, growth curves, and temperature setbacks.

  For more information, read **Programming Power Block settings** on page 31.
- **Equipment settings** apply to the specific equipment type. For example, the actuator 1 settings apply only to actuator 1. Equipment settings include settings for variable stages, actuators, curtains, relays and timed events.

  For more information, read **Programming equipment settings** on page 45.

Program *Power Block settings* before programming *equipment settings*.

The *Settings* window is where you program Power Blocks.



A This button displays the *Settings* window.

B This button displays the settings for Select Ventilation.

C This is a list of Power Blocks in each building at your site and where you select the Power Block you want to program.

D This is information about the selected Power Block.

E This is basic status information for the selected Power Block.

F This button opens the *Ventilation settings* window, which is where you set the operation mode (normal, tunnel, and empty room), master set point, temperature alarms, and all equipment settings, except for timed events. For more information, read **Programming Power Block settings on page 31** and **Programming equipment settings** on page 45.

G This button opens the *Timed event settings* window. For more information, read **Programming timed events** on page 59

H This button opens the *Power Block Status viewer*, which is where you can view a more-complete overview of the Power Block, including the status of the variable and relay stages. For more information, read **Viewing the status of a Power Block** on page 63.

I This is the setbacks area. The indicators show which setbacks are enabled. The button opens the *Temperature setbacks* window, which is where you program and enable temperature setbacks. For more information, read **Programming the temperature setback** on page 39.

J This is the growth curves area. The indicators show which curves are enabled. The button opens the *Ventilation growth curves* window, which is where you program and enable temperature setbacks. For more information, read **Programming ventilation curves** on page 35.

Programming Power Block settings

Programming Power Block settings includes the following.

- Using normal and empty room modes (below)
- Programming the master set point (on page 33)
- Programming tunnel mode (on page 34)
- Programming ventilation curves (on page 35)
- Programming alarms (on page 42)
- Programming the temperature setback (on page 39)

Using normal and empty room modes

Select Ventilation has two modes of operation for Power Block settings, *normal* and *empty room*. Each mode has its own, separate settings (set point, alarm settings, and so on).

Normal mode

Use normal mode when you want to control your equipment as you would during day-to-day operations. In normal mode, when the room or zone requires cooling, Select Ventilation operates the cooling equipment; when it requires heating, Select Ventilation operates the heating equipment.

Empty room mode

Empty room mode is a power saving feature that allows you to put a Power Block in an idle state. Because empty room mode has its own settings, you do not have to change your normal, operational settings. When you place a Power Block in empty room mode, it uses the *empty room* settings. When you return the Power Block to normal mode, it returns to using the *normal* settings.

In empty room mode, there is no active cooling, no tunnel mode, no ventilation curves, and no temperature setbacks. If the Power Block has variable stages, Select Ventilation maintains minimum ventilation. Select Ventilation operates heating equipment only if needed to keep the temperature at or above the set point.

Each type of equipment has different settings it uses during empty room mode. For more information about *equipment settings*, read **Programming equipment settings** on page 45.

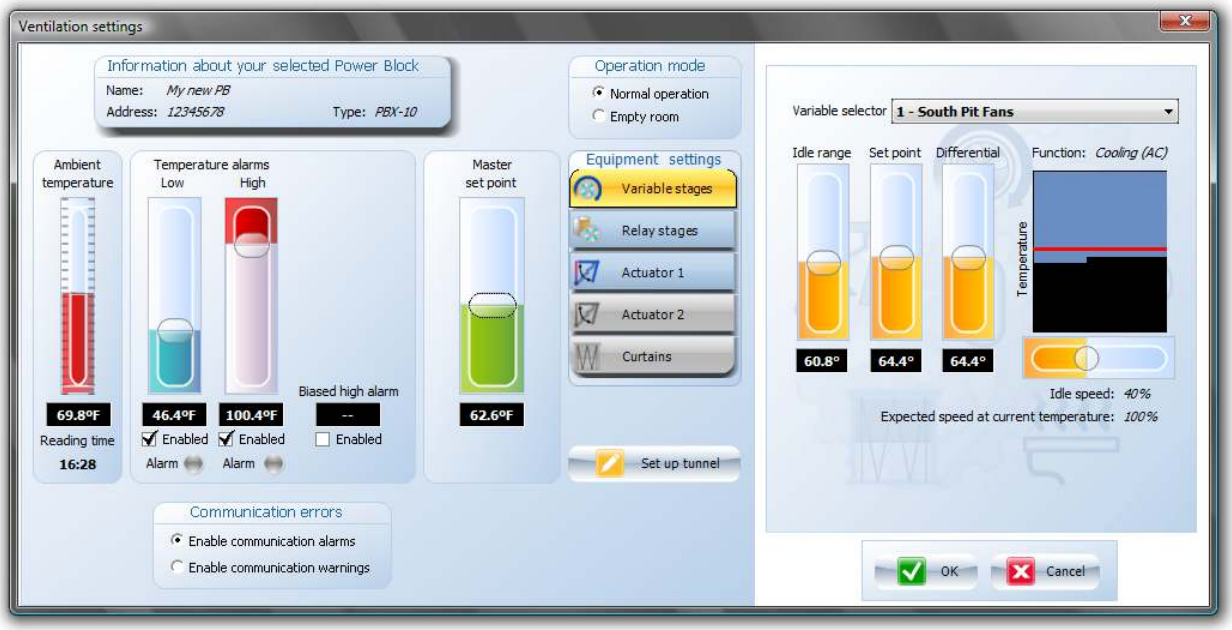
- **Variable cooling equipment** – only the idle speed setting is available and operates continually at that speed.
- **Variable heating equipment (PBx and PB-6 only)** – all settings are available. Equipment operates only if needed to keep the temperature at or above the set point.
- **Single-stage cooling equipment** – no settings are available. Cooling equipment does not operate.
- **Single-stage heating equipment** – all settings are available. Heating equipment operates only if needed to keep the temperature at or above the set point.
- **Actuators** – only one inlet position is available. Inlets maintain this programmed position.
- **Curtains** – no settings are available; the curtains are closed.
- **Timed events** – timed events are not affected by empty room mode.

Program the empty room set point to a low, but safe temperature. For example, if there are water lines in the room and there is a risk of freezing, set the set point to 40°F; do not set it to 20°F.

To change operation modes

1. In the main window, click **Settings**, and then **Ventilation**.
2. Below *Your Power Blocks*, select the Power Block you want to program and then click **Edit settings**.
   The *Ventilation settings* window displays, showing settings for the current operation mode, normal or empty room. If the mode you want to program or use is not active, below *Operation mode*, select the mode you want.

   The mode settings that are visible when you close the window are the settings Select Ventilation uses.



3. Click **OK** to save the changes and return to the *Settings* window.

Programming the master set point

The master set point is the desired or target temperature for the room or zone. **Make sure you program the master set point before programming the equipment set points.** If you adjust the master set point, Select Ventilation adjusts the set points for each variable and relay stage relative to the master set point.

For example, the master set point for zone 1 is 80°F, a variable-stage fan set point is 85°F, and a single-stage heater set point is 73°F. If you lower the master set point by 5 degrees to 75°F, Select Ventilation lowers the set points for the fan and heater by 5 degrees to 80°F and 68°F respectively.

Use the **Master settings worksheet** on page 82 when programming Power Block settings.

You cannot manually adjust the master set point if the master set point curve is enabled. For more information, read **Programming ventilation curves** on page 35.

To program the master set point

1. In the main window, click **Settings**, and then **Ventilation**.
2. Below *Your Power Blocks*, select the Power Block you want to program and then click **Edit settings**.
   The *Ventilation settings* window displays.
3. Below *Master set point*, click and drag the slider up or down. To adjust the temperature by 0.1-degree increments, click the slider and then press UP or DOWN on your keyboard.
4. Click **OK** to save the changes and return to the *Settings* window.

Programming tunnel mode

In a barn set up for tunnel ventilation, air inlets are located on one end wall of the building, while exhaust fans are on the opposite end. When tunnel ventilation is active, air moves through the length of the barn at a higher speed than it does using traditional cross-flow ventilation. This creates a wind chill effect that maximizes the cooling of animals in hot weather.

The benefits of using tunnel mode are reduced heat stress, increased animal comfort, and the ability to maintain productivity during hot weather.

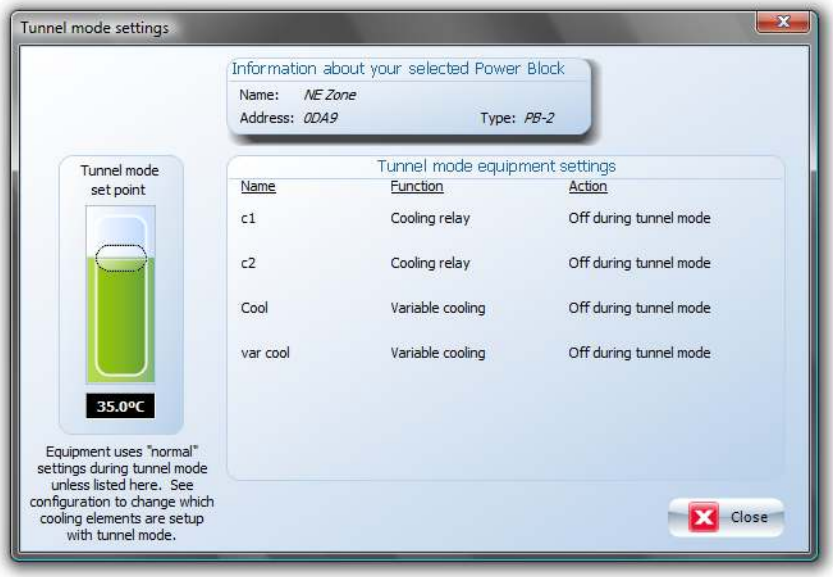
Producers often use tunnel ventilation alongside traditional cross-flow ventilation. During cool weather, they use sidewall fans and ceiling inlets. During hot weather, when more cooling is required, they switch to tunnel ventilation.

Select ventilation gives you a way to switch off or close equipment not needed during tunnel mode. Tunnel mode allows you to automatically switch from cross-flow to tunnel ventilation. During the transition, tunnel fans switch on and inlets open, while sidewall fans switch off and ceiling inlets close.

To program tunnel mode

1. In the main window, click **Settings**, and then **Ventilation**.
2. Below *Your Power Blocks*, select the Power Block you want to program and then click **Edit settings**.
   The *Ventilation settings* window displays.
3. Click **Set up tunnel**.

The *Tunnel mode settings* window displays.



4. Click and drag the slider up or down. To adjust by smaller, 0.1-degree increments, click the slider and then press UP or DOWN on your keyboard.
5. Click **Close** to return to the *Ventilation settings* window.
6. Click **OK** to save the changes and return to the *Settings* window.

Programming ventilation curves

As animals grow, their temperature and ventilation requirements change. Younger, smaller animals require higher temperatures than more mature animals. More mature animals require more ventilation (airflow) than younger animals.

Select Ventilation has two types of ventilation curves, master set point curves (also called *growth curves*) and minimum ventilation curves. Both the master set point and minimum ventilation curves allow you to automatically adjust settings over time, as your animals grow.

Master set point curves

A master set point curve is an extension of the master set point concept. The curve automatically adjusts the master set point temperature over time.

In hog production, newborn piglets require a high temperature for comfort and health. As they grow older, they need a steadily lower temperature. Using the master set point curve, you can have Select Ventilation automatically adjust the temperatures as the animals grow.

If you are using a master set point curve, you cannot adjust the master set point slider in the main *Settings* window. You must adjust the curve.

Minimum ventilation curves

In hog production, minimum ventilation is very important for controlling humidity and getting rid of gases (methane, carbon dioxide, and others). Insufficient ventilation can cause high humidity, high gas levels, and stagnant air.

As animals grow older, they require more fresh air, but produce more humidity and gases. Using the minimum ventilation curve, you can have Select Ventilation automatically adjust the minimum ventilation as the animals grow.

Minimum ventilation curves are available only on Power Blocks that offer variable stage cooling.

If you are using a minimum ventilation curve, the idle speed is controlled by the curve; you cannot adjust the idle speed slider in the main *Settings* window. You must adjust the curves instead.

How ventilation curves work

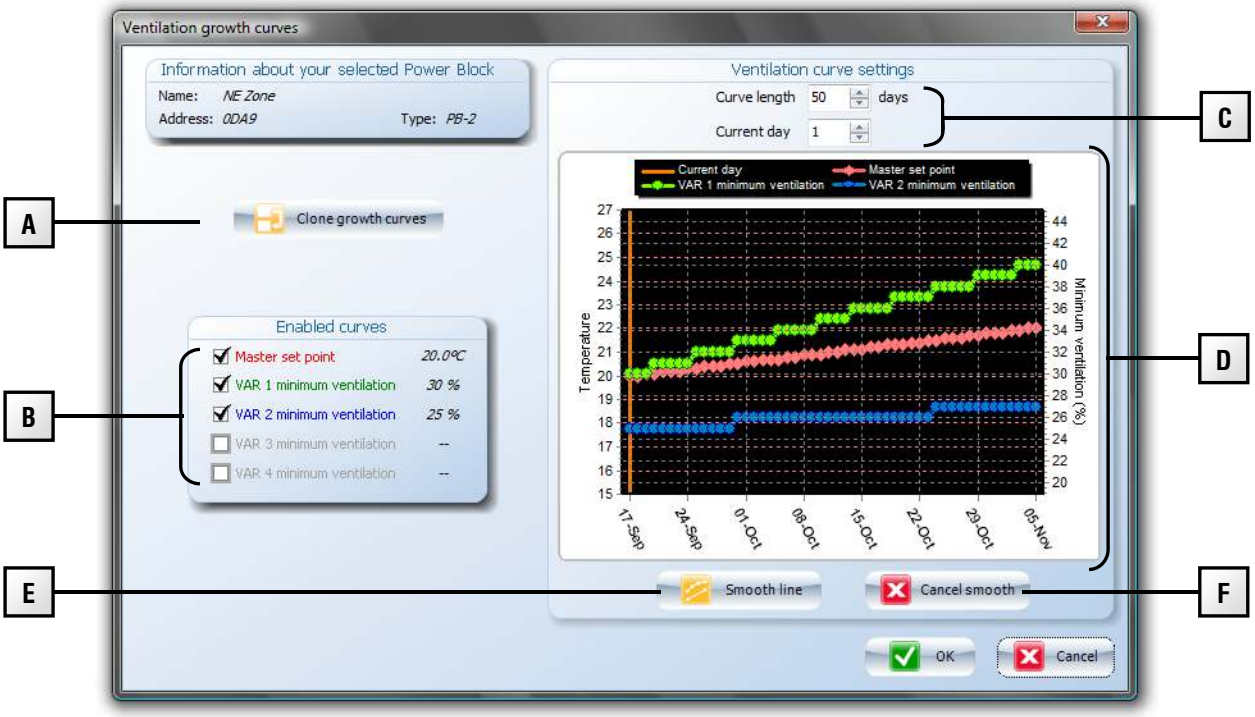
Select Ventilation reads the curve(s) each day at midnight and sends the settings for the current day to the Power Block. The Power Block controls the temperature and/or minimum ventilation according to the settings for that day. At the end of the curve, Select Ventilation continues using the settings from the last day of the curve.

If you change the settings for a curve, the program sends the settings for the current day to the Power Block when you click **OK** on the *Ventilation growth curves* window.

Curve length and current day

Curve length is the number of days in the curve. Curves can have up to 365 days. Current day defines which day's settings Select Ventilation is currently using.

The *Ventilation growth curves* window is where you program ventilation curves.



A This button opens the *Growth Curve cloning* window, which is where you can copy the curves from another Power Block

B This is where you enable or disable curves. When enabled, there is a checkmark in the box beside the curve. The text color corresponds to the color on the chart. The information on the right is the setting for the current day.

C This is the curve length and current day; both values apply to all curves for the Power Block. To change either value, type a number in the box or click **Up** or **Down** beside the item you want to change.

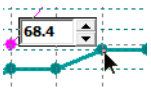
D This is where you adjust the points on the curves. The chart shows colored lines and dots for the enabled curves. The vertical orange line shows the current day. The left axis is for the master set point curve and the right axis is for the minimum ventilation curves.

E This button allows you to smooth or draw a straight line between two points.

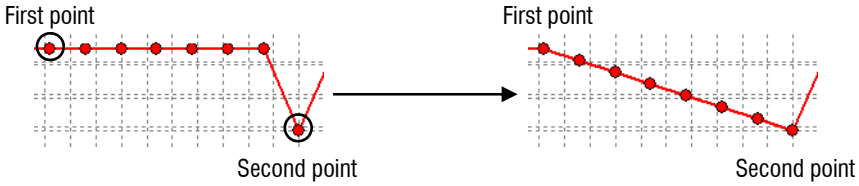
F This button allows you to cancel the smoothing process before it completes.

Tips for working with curves

- Left-click any point to display its setting. Click **Up** or **Down** to adjust the setting.



- Use smoothing to "draw" a straight line between two points.
  - Click **Smooth line**.
  - Click the first point; in other words, the starting point you want to adjust.
  - Click the second point, the last point you want to adjust.
  - Select Ventilation adjusts all the points between the two selected.



- ◇ The Power Block must be in normal operation mode to program ventilation curves. For more information, read **Using normal and empty room modes** on page 31.
- ◇ If the master set point curve is enabled, you cannot manually adjust the master set point for that Power Block.
- ◇ If a minimum ventilation curve is enabled, you cannot manually adjust the idle speed for that variable stage.

- ◇ Use the **Master settings worksheet** on page 82 when programming Power Block settings.

To clone curves

1. In the main window, click **Settings**, and then **Ventilation**.
2. Below *Your Power Blocks*, select the Power Block you want to program and then click **Edit curves**. The *Ventilation growth curves* window displays.
3. Click **Clone growth curves**.
   The *Growth curve cloning* window displays.
4. Select the Power Block with the growth curves you want to copy.
5. Click **OK** to copy the curves and return to the *Ventilation growth curves* window.

You cannot undo or cancel a growth curve clone.

To program curves

1. In the main window, click **Settings**, and then **Ventilation**.
2. Below *Your Power Blocks*, select the Power Block you want to program and then click **Edit curves**. The *Ventilation growth curves* window displays.
3. Make the changes to the curve. For more information, read **Tips for working with curves** on page 37.
   - To enable or disable a curve, below *Enabled curves*, select or deselect the curve you want. There is a checkmark in the box when the curve is enabled.
   - To change the current day, beside *Current day*, type a number in the box or click **Up** or **Down**.
   - To change the curve length, beside *Curve length*, type a number in the box or click **Up** or **Down**.
4. Click **OK** to save the changes and return to the *Settings* window.
   Select Ventilation starts any enabled curves and sends the current day's settings to the Power Block.

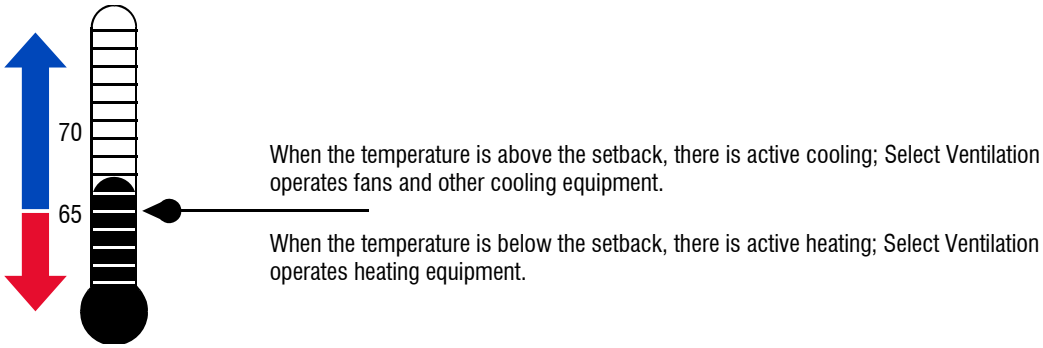
Programming the temperature setbacks

A temperature setback automatically changes set points during specific times, called the setback period, each day. The setback amount can be from 0.1 to 25°F (0.1 to 14°C). There are two types of setback: *DIF* and *power save*.

DIF setback

DIF stands for differential method. During the setback period for DIF, Select Ventilation actively cools the area to try to lower the temperature to the new set point. DIF is similar to manually setting the master set point back by a number of degrees for a certain time every day. Because all equipment follows the master set point, all equipment gets setback the same number of degrees.

For example, if the master set point is 70°F and the DIF setback is 5°, during the setback period, the following happens.


70
65
When the temperature is above the setback, there is active cooling; Select Ventilation operates fans and other cooling equipment.
When the temperature is below the setback, there is active heating; Select Ventilation operates heating equipment.

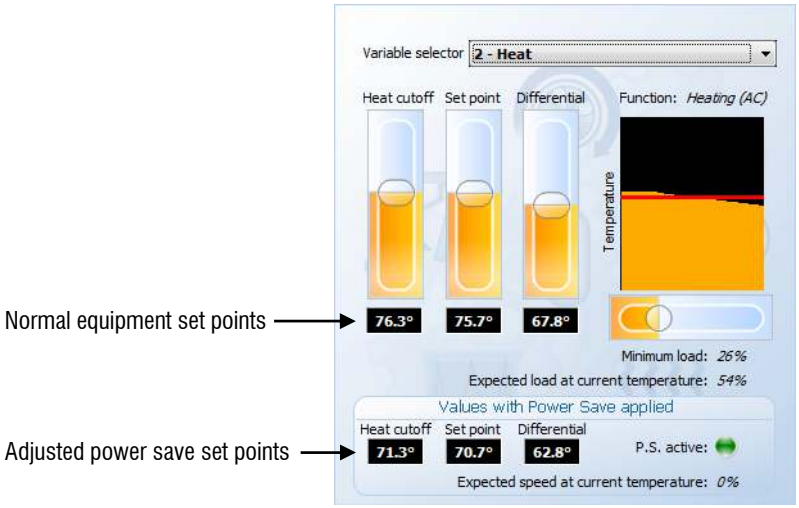
Power save setback

The power save setback lowers the set points for *heating equipment* by a number of degrees. Each relay or variable configured as heating will have its set point lowered. Using power save is similar to setting your home furnace thermostat a few degrees lower at night so that the furnace switches on at a lower temperature.

The difference between the DIF and power save setbacks is that DIF adjusts the *master set point*, affecting all equipment. Power save adjusts only the heating equipment, individually.

The following example shows what happens with a power save setback of 5°F.

- During the hours of power save setback is not active, the equipment functions using its normal set points.
- During the hours the power save setback is active, the equipment functions using the adjusted set points; in this case, 5° lower.



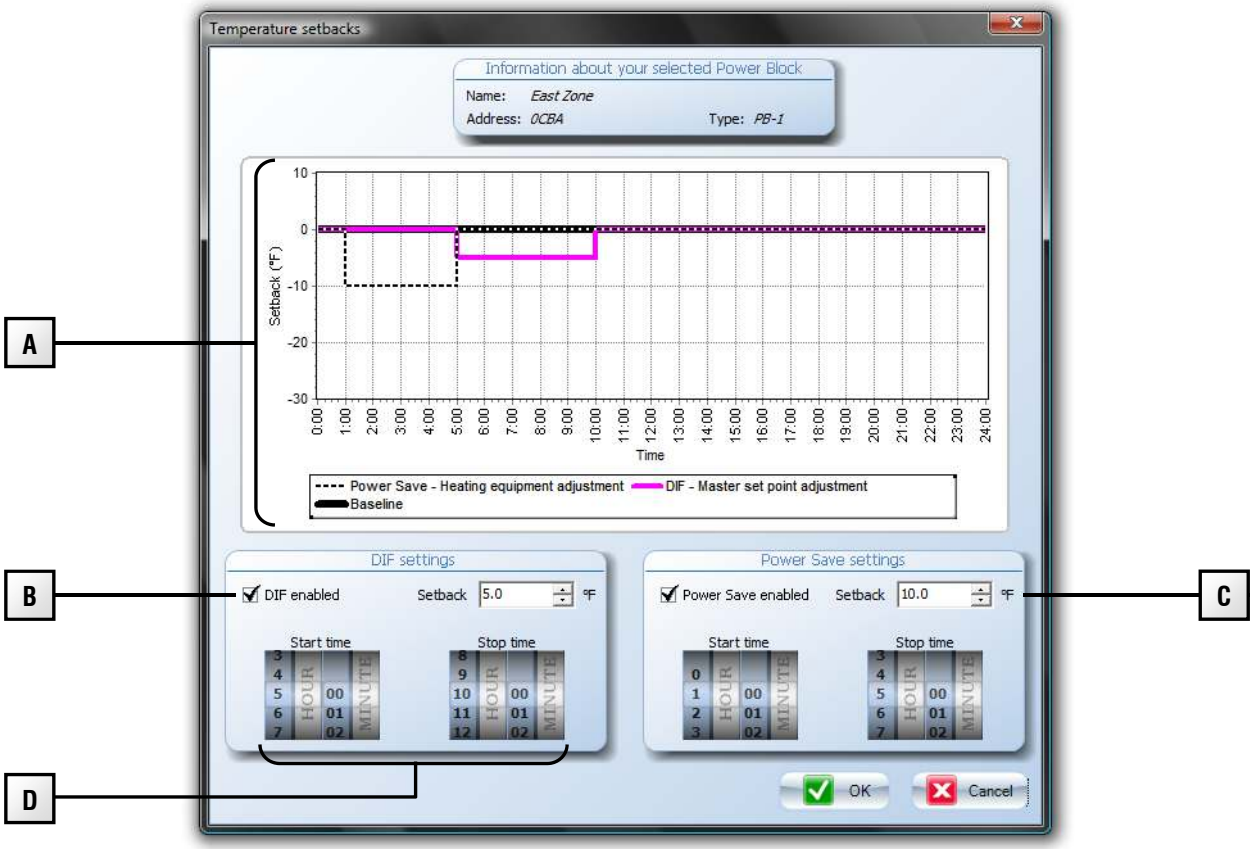
DIF and power save setback combined

If DIF and power save setbacks are active at the same time, the power save value is what remains after the DIF value has been applied.

For example, for a DIF of 5°F and a power save of 6°F:

- The DIF setback lowers the master set point 5°F.
- The power save setback lowers the heating equipment set points by another 1°, for an overall adjustment of 6°F for heating equipment, and 5°F for the other equipment.

The *Temperature setbacks* window is where you program the DIF and power save setbacks.



A This is a chart of the baseline set point and setbacks during the day. When you change the setbacks, the chart adjusts automatically.

B This is where you enable or disable setbacks. When enabled, there is a checkmark in the box.

C This is the setback amount. To change the value, type a number in the box or click **Up** or **Down**.

D These are the start and stop times. To change a time, click and drag the number up or down. You can also click the number and then press UP or DOWN on your keyboard.

Use the **Master settings worksheet** on page 82 when programming Power Block settings.

- ◇ The following instructions use DIF as an example. The instructions for power save are the same, but use the settings on the other side of the window.
- ◇ The setback must be enabled for you to change its settings.

To program the temperature setback

1. In the main window, click **Settings**, and then **Ventilation**.
2. Below *Your Power Blocks*, select the Power Block you want to program and then click **Edit setbacks**.
   The *Temperature setbacks* window displays.
3. Adjust the DIF settings.
   - To enable or disable the setback, select *DIF enabled*. There is a checkmark in the box when it is enabled.
   - To change the setback amount, beside *Setback*, type a number in the box or click **Up** or **Down**.
   - To change the start or stop time, click and drag the number for the hour or minute up or down. You can also click the number and then press UP or DOWN on your keyboard.
4. Click **OK** to save the changes and return to the *Settings* window.

Programming alarms

You can program alarms that notify you of communication errors and undesirable temperature conditions. When there is an alarm condition, the Power Block alarm relay immediately activates, and Select Ventilation posts a message in the *Communication Center* and *Alarm log*.

Communication errors

For each Power Block, you have the option to enable communication *alarms* or *warnings*. Communication errors occur when an active Power Block becomes unresponsive.

Communication *alarms*

When you enable communication alarms and there is a communication error, OMNI Select displays a red "X" in the Communication Center. If you have **Select Alert**, the program dials out.

Communication *warnings*

When you enable communication warnings and there is a communication error, OMNI Select displays a yellow "!" in the Communication Center. If you have **Select Alert**, the program *does not* dial out.

Temperature alarms and alarm biasing

Select Ventilation gives you the ability to set low and high temperature alarms.

- There is a low temperature alarm condition when *low alarm* is enabled and the temperature is *lower* than the low set point
- There is a high temperature alarm condition when *high alarm* is enabled and the temperature is *higher* than the high set point.

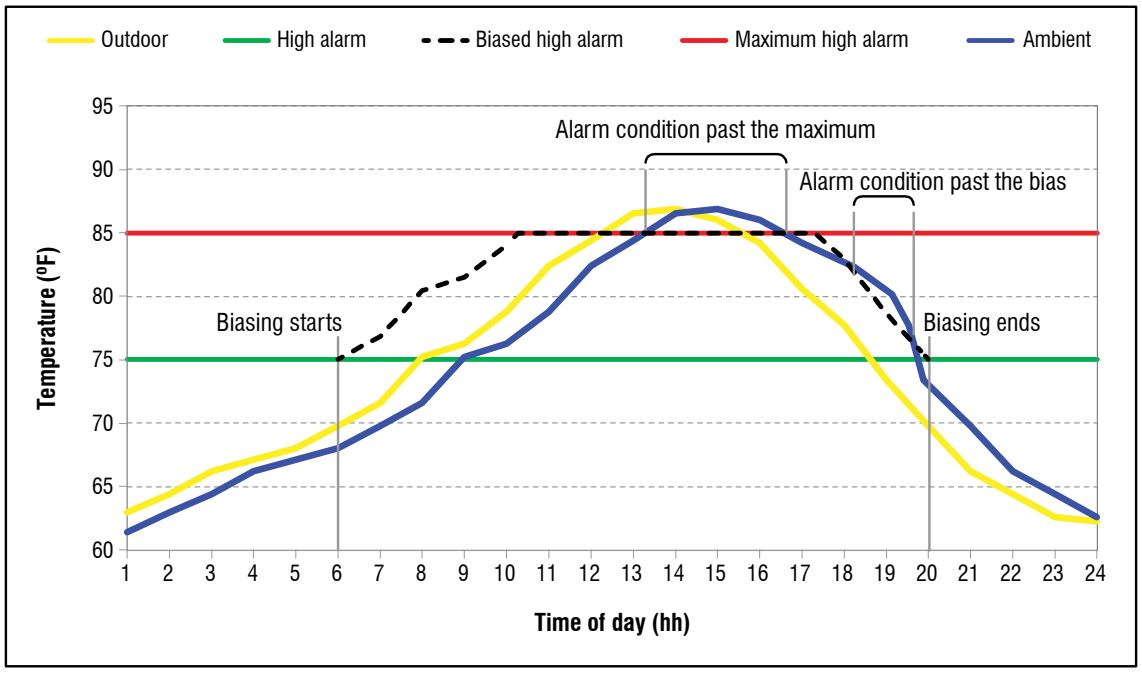
Alarm biasing gives you the ability to add a buffer for the high alarm to help prevent the alarm from sounding on very hot days.

> Alarm biasing requires the ability to monitor outdoor temperatures. Monitoring outdoor temperatures requires an outdoor temperature probe. For more information, read the *Monitoring outdoor temperatures* section of the **OMNI Select user manual**.

How alarm biasing works for PBx Power Blocks

For PBx Power Blocks, you set the *bias offset* and the *high alarm maximum*. Select Ventilation adds the bias offset to the outdoor temperature to create a new setting called the *biased high alarm*. The biased high alarm becomes the new temperature limit, up until the high alarm maximum. When the ambient temperature is higher than the biased high alarm, there is an alarm condition.

In the following example, the *high alarm temperature* is 75°F, the *bias offset* is 5°F, and the *high alarm maximum* is 85 °F.



- Select Ventilation adds 5° to the *outdoor temperature* to create the *biased high alarm*, up to a maximum of 85 °F.
- At approximately 6 AM, biasing starts. At approximately 1:30 PM, there is an alarm condition as the ambient temperature exceeds the biased high alarm.

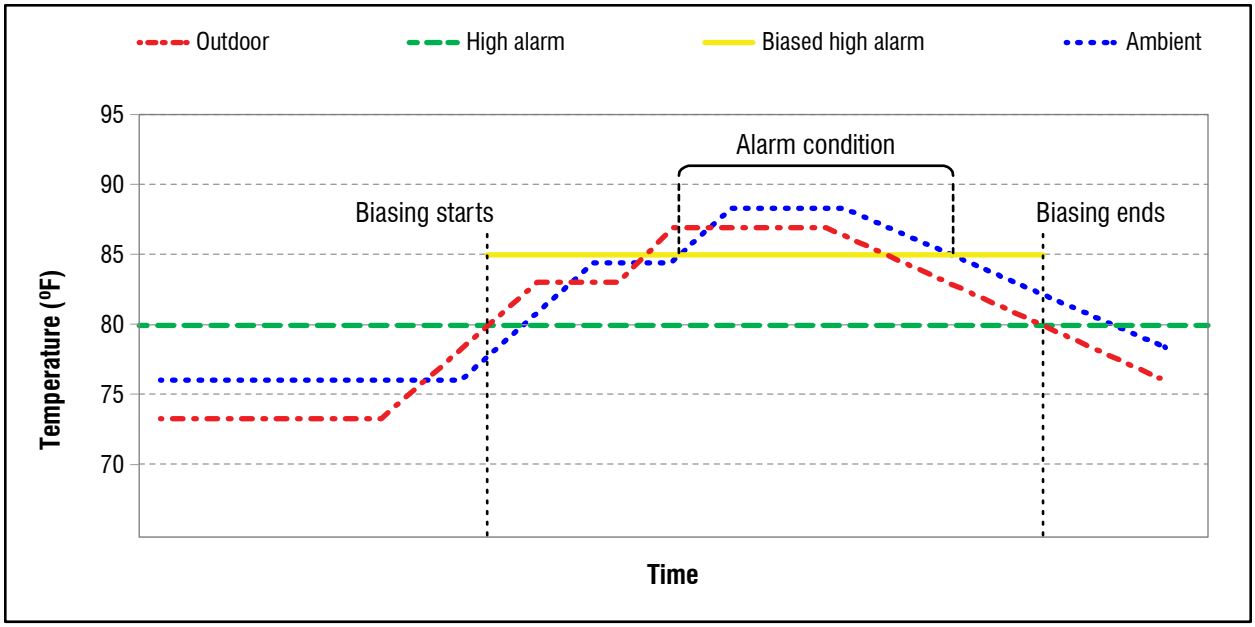
Alarm biasing for PB-1 to PB-6 Power Blocks

For PB-1 to PB-6 Power Blocks, you set the *bias offset*.

When the outdoor temperature is higher than the *high alarm temperature*, Select Ventilation adds the bias offset to the high alarm temperature to create a new setting called the *biased high alarm*. The biased high alarm becomes the new temperature limit. When the ambient temperature is higher than the biased high alarm, there is an alarm condition.

In the following example, the *high alarm temperature* is 80 °F, and the *bias offset* is 5°F.

- When the outdoor temperature is higher than the high alarm temperature (80°F), Select Ventilation adds 5° to the high alarm temperature to create the biased high alarm of 85 °F.
- When the ambient temperature is higher than the biased high alarm setting, there is an alarm condition.



Use the **Master settings worksheet** on page 82 when programming Power Block settings.

To program temperature alarms

1. In the main window, click **Settings**, and then **Ventilation**.
2. Below *Your Power Blocks*, select the Power Block you want to program and then click **Edit settings**.
   The *Ventilation settings* window displays.
3. Adjust the alarm settings.
   - To enable or disable an alarm, select or deselect *Enabled* below the alarm you want to change.
   - To adjust an alarm temperature, click and drag its slider up or down. To adjust the temperature by 0.1-degree increments, click the slider and then press UP or DOWN on your keyboard.
4. If you have outdoor temperature monitoring capability and want to use high temperature alarm biasing, enable and adjust the bias settings.
   - To enable or disable biasing, select or deselect *Enabled* below *Biased high alarm*.
     When enabled, the bias settings display.
   - To adjust the bias offset, type a number in the box below *Bias offset*. You can also click **Up** or **Down**.
   - To adjust the maximum (available for PBx Power Blocks only), type a number in the box below High alarm maximum. You can also click **Up** or **Down**.
5. Click **OK** to save the changes and return to the *Settings* window.

Programming equipment settings

Programming equipment settings means programming settings for variable stages, actuators, curtains, and so on. For example, for a single-speed fan set for cooling, you might say "Switch on when the temperature rises above 80°F."

Programming equipment settings contains the following.

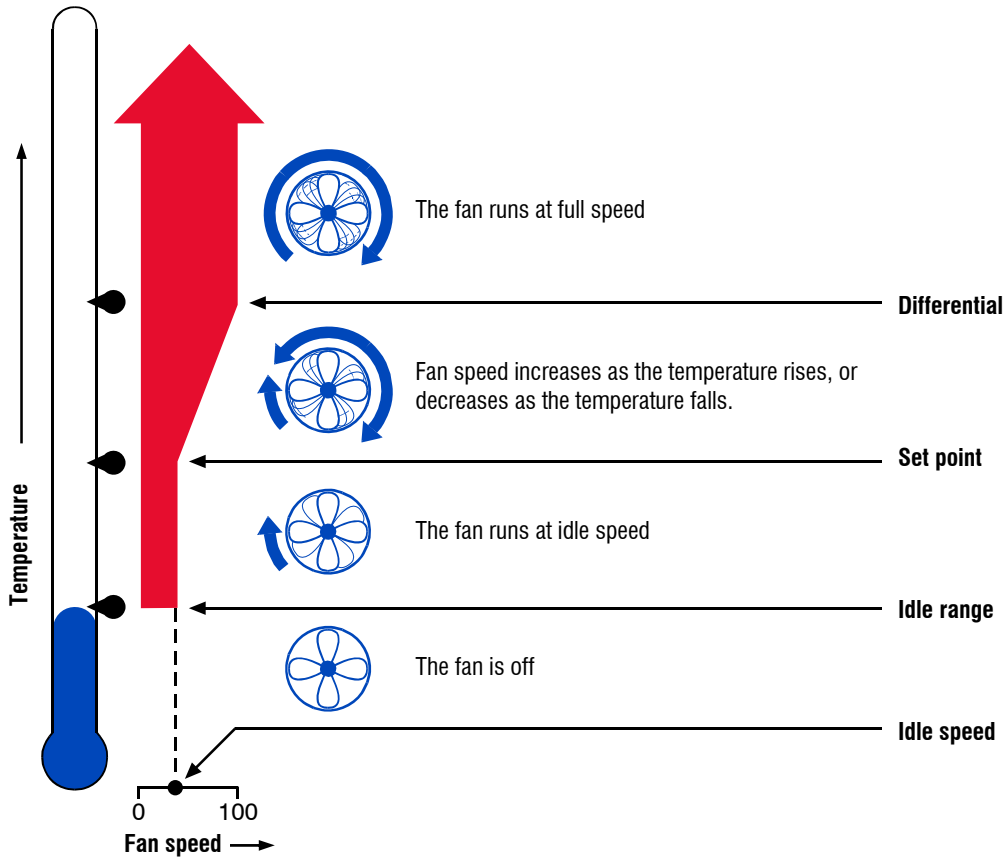
- Programming variable stages (on page 46
- Programming relays for actuator control (on page 49)
- Programming relays for curtain control (on page 53)
- Programming heating, cooling, and duty-cycle relays (on page 56)
- Programming timed events (on page 59)

Programming variable stages

Before programming variable stages, make sure you have them properly configured. For more information, read **Configuring variable stages** on page 18.

How variable cooling stages work

- When the temperature is below the *idle range*, the fan is off.
- When the temperature reaches the *idle range*, the fan runs at the *idle speed*. The fan continues to run at the *idle speed* until the temperature rises to the *set point*.
- When the temperature is between the *set point* and *differential*, fan speed increases or decreases proportionally with the temperature.
- When the temperature is at or above the *differential*, the fan runs at full speed.



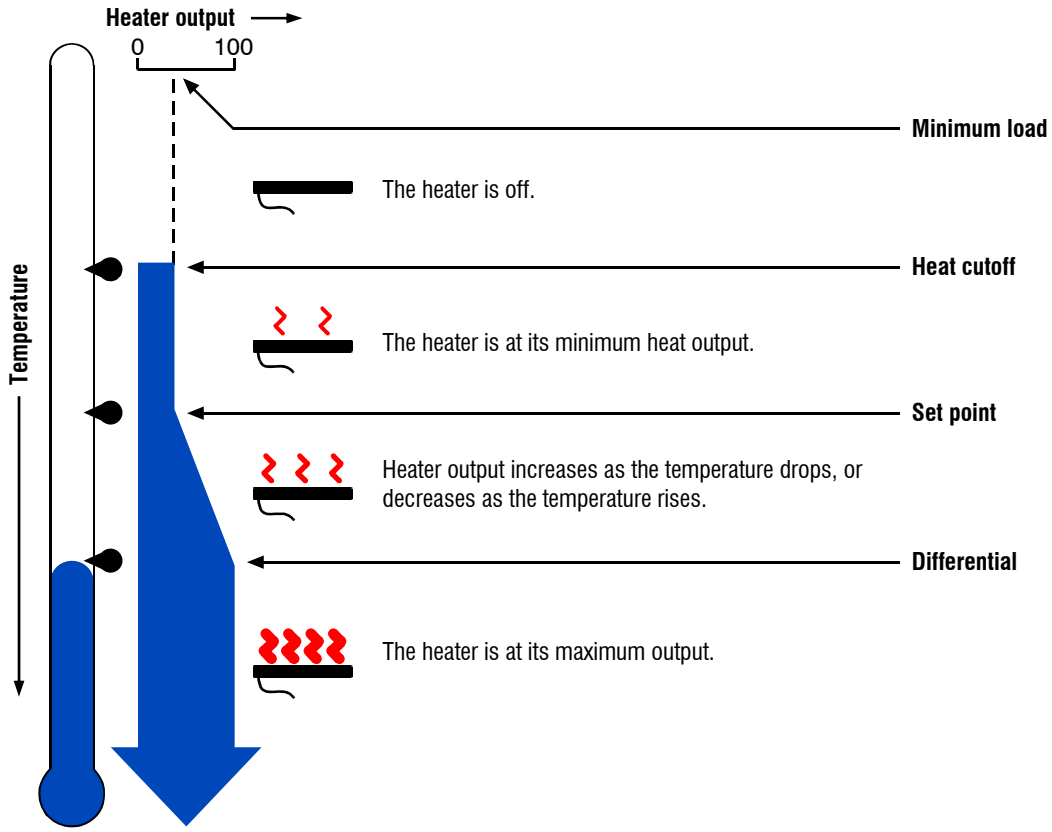
- ◇ The *set point* and *differential* must be greater than the *idle range*.
- ◇ If there is not much difference between the *set point* and *differential*, the fans can suddenly jump in speed. For example, if there is only a 0.1° difference between the two settings, the fans can jump from 50 to 80% because of the tight range.

If you need to connect more cooling elements than you have relays available and you have an unused variable stage, you can use it as an ON/OFF stage (for 115/230 VAC-powered equipment only).

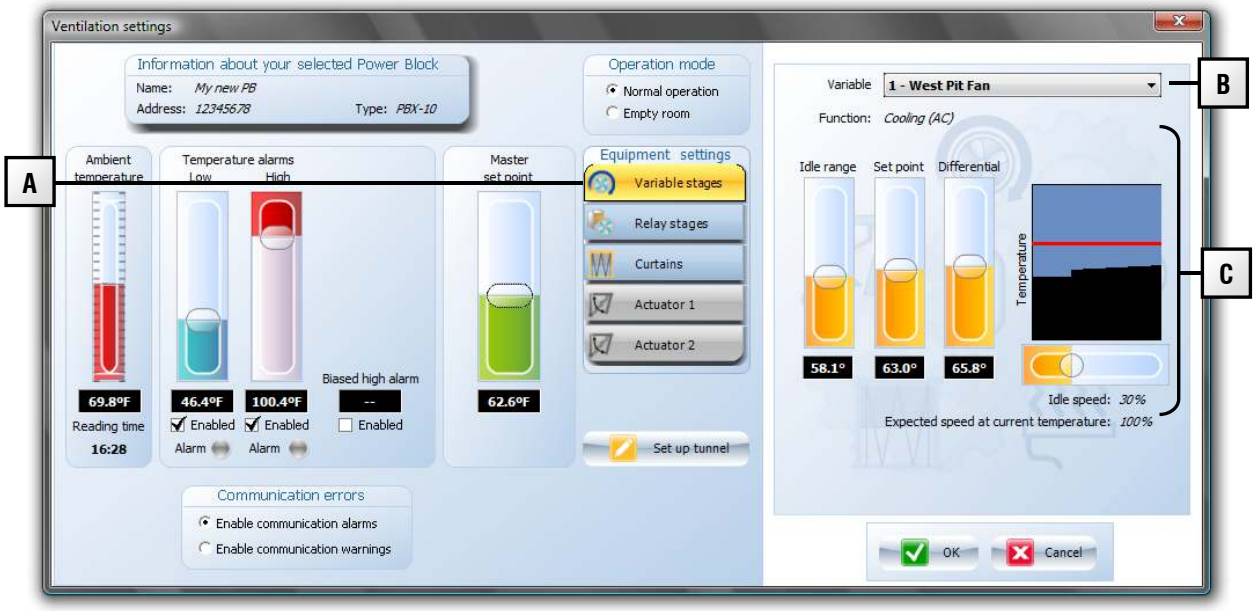
- ◇ Set the idle speed to 100% and idle range to the temperature at which you want the stage to switch on/off.
- ◇ You no longer have *variable* speed or power; you have either *full on* or *full off*, the same as a cooling relay. The *set point* and *differential* settings have no effect when you use a variable stage this way.

How variable heating stages work

- ◆ When the temperature is above the *heat cutoff*, the heater is off.
- ◆ When the temperature drops below the *heat cutoff*, the heater is at the *minimum load*. The heater continues to operate at *minimum load* until the temperature drops to the *set point*.
- ◆ When the temperature is between the *set point* and the *differential*, heater output increases or decreases proportionally with the temperature.
- ◆ When the temperature is below the *differential*, the heater ois at full output.



The *Ventilation settings* window is where you program the variable stage settings. The following example is for cooling stages. The window for a heating stage is similar.



A This button displays the variable stage settings.

B This is where you select the variable stage you want to program.

C These are the settings for the selected variable stage. The diagram corresponds to the settings. The blue area (or orange for a heat stage) represents when the equipment will be on. The red line represents the ambient temperature.

- To adjust a setting, click and drag its slider up or down (left or right for the idle speed).
- To adjust a setting by 0.1-degree or 1 percent increments, click the slider and then press UP or DOWN on your keyboard.
- To adjust a setting by 1.0-degree or 10 percent increments, click the slider and then press PGUP or PGDOWN on your keyboard.

- After the room is properly set up and balanced, you should not need to change the variable stage settings. Changing the settings after the room is set up can affect the ventilation balance in the room. If you need to change settings after the room is set up, you should change the *Power Block settings*. For more information, read **Programming Power Block settings** on page 31.
- If the Power Block is in *empty room mode*:
  - **Variable heating stages** – all settings are available. Equipment operates only if needed to keep the temperature at or above the set point.
  - **Variable cooling stages** – only the idle speed setting is available. Equipment operates only to maintain minimum ventilation.

Use the **Variable stage settings worksheet** on page 83 when programming variable stages.

If a minimum ventilation curve is enabled, you cannot manually adjust the idle speed for that variable stage. For more information, read **Programming ventilation curves** on page 35.

To program variable stages

1. In the main window, click **Settings**, and then **Ventilation**.
2. Below *Your Power Blocks*, select the Power Block you want to program and then click **Edit settings**.
   The *Ventilation settings* window displays.
3. Below *Equipment settings*, click **Variable stages**.
   The window displays the settings for the first variable stage.
4. Beside *Variable*, select the stage you want to program
   The window displays the settings for the selected stage.
5. Adjust the settings.
   - To adjust a setting, click and drag its slider up or down (left or right for the idle speed).
   - To adjust a by 0.1-degree or 1 percent increments, click the slider and then press UP or DOWN on your keyboard.

     The diagram changes as you adjust the settings.
6. Repeat steps 4 and 5 for each variable stage you want to program.
7. Click **OK** to save the changes and return to the *Settings* window.

Programming relays for actuator control

Before programming the actuator relays, make sure you have properly configured the relays and calibrated the actuators. For more information, read **Configuring relays for actuators** on page 20 and the calibrating actuators section in the **Power Block installation guide**.

You can use actuator control for curtain machines **only if you are using a feedback potentiometer**.

Programming actuators means setting the temperature set points, differential, and position for each stage of the actuator. For each actuator, you need to program:

- Minimum set point temperature
- Minimum position
- Set point temperature, differential temperature, and position for stages 1 to 4

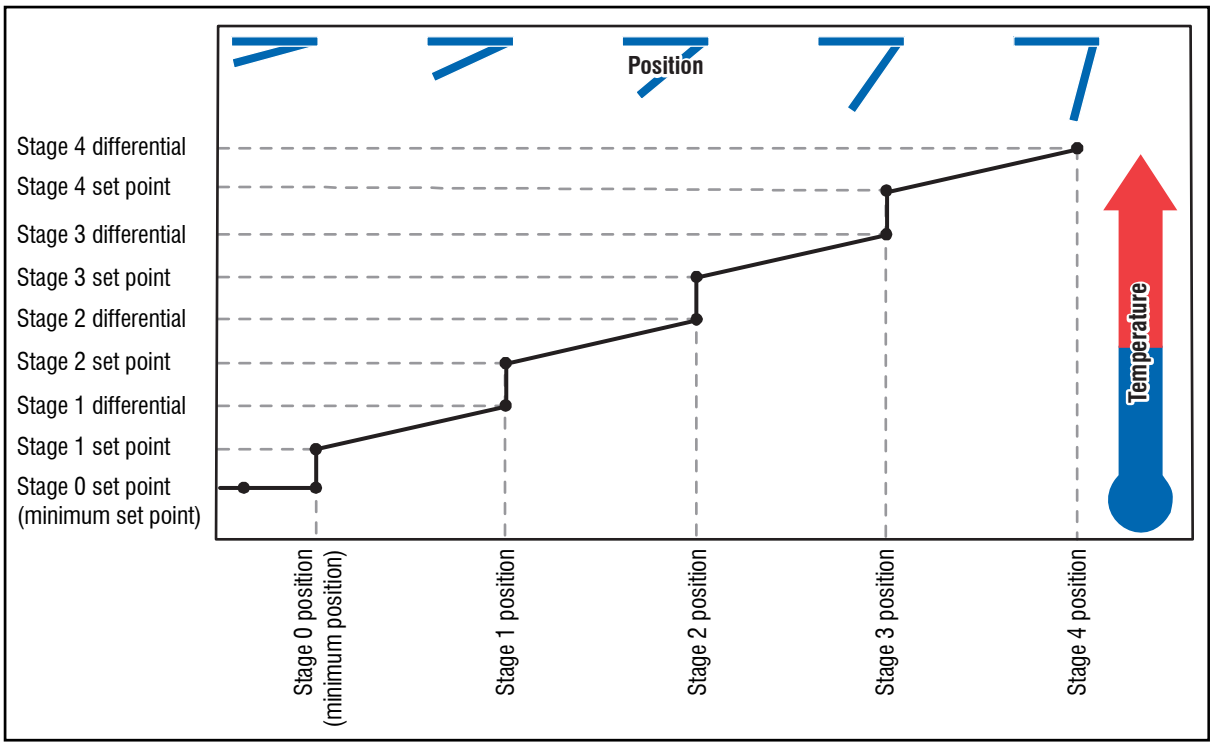
How actuators work

- When the temperature is below the minimum set point, the inlet/actuator is closed.
- When the temperature rises to the minimum set point, the actuator moves to the minimum position.
- As the temperature rises, the actuator has four stages it moves through until it reaches its maximum open position. This method lets you gradually open inlets instead of fully opening them when the temperature rises above a single set point.

Example

You want the actuator open to 40 percent at stage 1, 60 percent at stage 2, 80 percent at stage 3, and 100 percent at stage 4. However, you do not want the actuator to open directly to 40 percent. That is why there are two temperature settings for each stage. The first setting is the *stage set point*. This is where the actuator starts opening. The second setting is the *differential*. This is where the actuator reaches the *stage position*.

In other words, "When the temperature is here (stage set point), I want the actuator to start opening. When the temperature reaches here (stage differential), I want the actuator to be at this position (stage position)."



The *Ventilation settings* window is where you program actuator settings.

A These buttons display the actuator settings.

B This is where you enable or disable the actuator jam alarm. There is a check mark in the box when the alarm is enabled. This feature is available only for PBx Power Blocks.

C This is where you select the actuator stage you want to program.

D These are the settings for the selected actuator and stage. The diagram corresponds to the settings. The blue line represents the actuator settings. The red line represents the ambient temperature.

- To adjust a setting, click and drag its slider up or down.
- To adjust a setting by 0.1-degree or 1 percent increments, click the slider and then press UP or DOWN on your keyboard.
- To adjust a setting by 1.0-degree or 10 percent increments, click the slider and then press PGUP or PGDOWN on your keyboard.

- After the room is properly set up and balanced, you should not need to change the actuator settings. Changing the settings after the room is set up can affect the ventilation balance in the room. If you need to change settings after the room is set up, you should change the *Power Block settings*. For more information, read **Programming Power Block settings** on page 31.
- If the Power Block is in *empty room mode*, only the inlet position is available. Inlets maintain the programmed position.

Use the **Actuator settings worksheet** on page 85 when programming actuators.

To program actuators

1. In the main window, click **Settings**, and then **Ventilation**.
2. Below *Your Power Blocks*, select the Power Block you want to program and then click **Edit settings**.
   The *Ventilation settings* window displays.
3. Below *Equipment settings*, click the actuator you want to adjust.
   The window displays the settings for the minimum stage of the selected actuator.
4. Below *Stage*, select the actuator stage you want to program.
5. Adjust the settings. The diagram changes as you adjust the settings.
   - To adjust a setting, click and drag its slider up or down (left or right for the stage position).
   - To adjust by 0.1-degree or 1 percent increments, click the slider and then press UP or DOWN on your keyboard.
6. Repeat steps 4 and 5 for each actuator stage you want to program.
7. Click **OK** to save the changes and return to the *Settings* window.

Programming relays for curtain control

Curtains control the temperature by adjusting airflow into the facility. Before setting up the curtains, make sure you have properly configured the relays. For more information, read **Configuring relays for curtain control** on page 22.

Programming curtain control relays means programming the following settings.

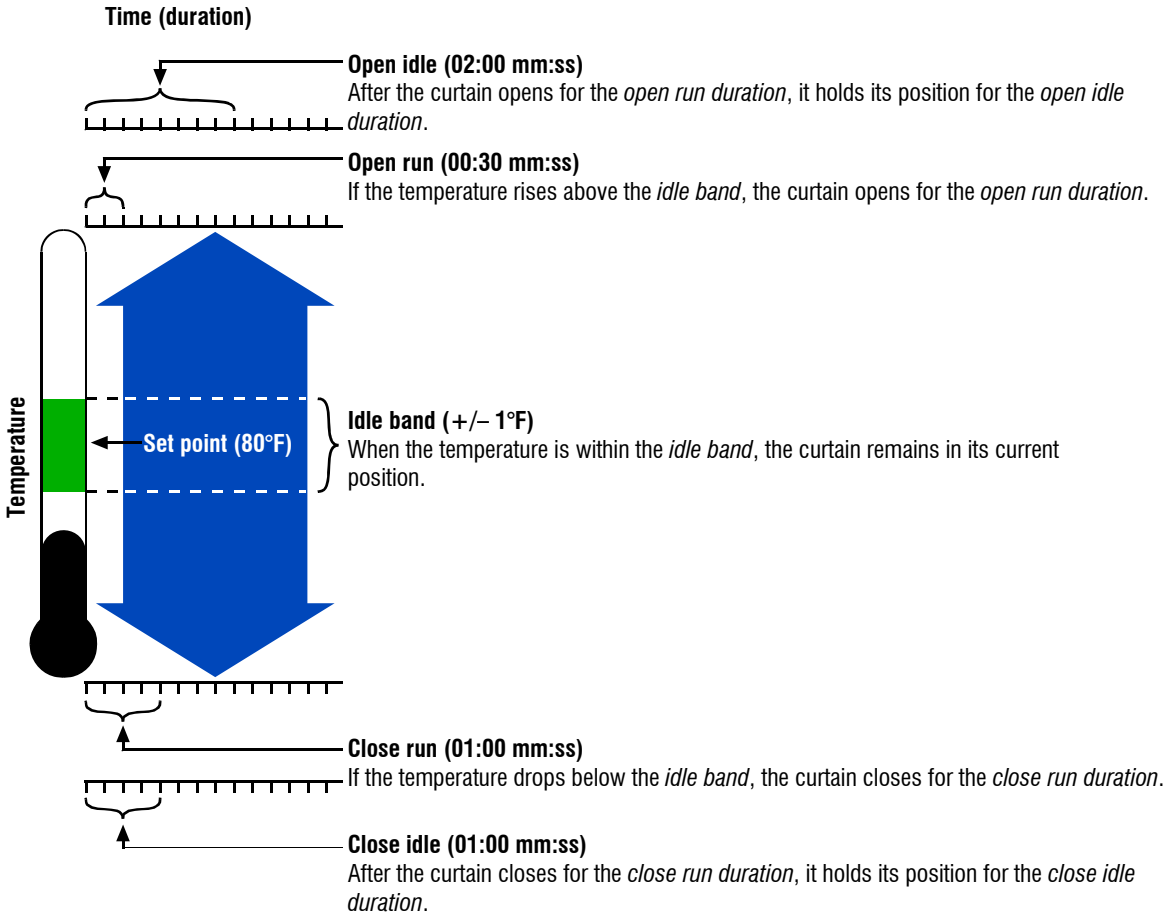
- *Set point* – the temperature at which the curtain holds its position
- *Idle band* – the buffer around the set point within which the curtains hold their position
- *Open run duration* – the duration the curtains open during the OPEN cycle
- *Open idle duration* – the duration the curtains pause during the OPEN cycle
- *Close run duration* – the duration the curtains open during the CLOSE cycle
- *Close idle duration* – the duration the curtains pause during the CLOSE cycle

How curtains work

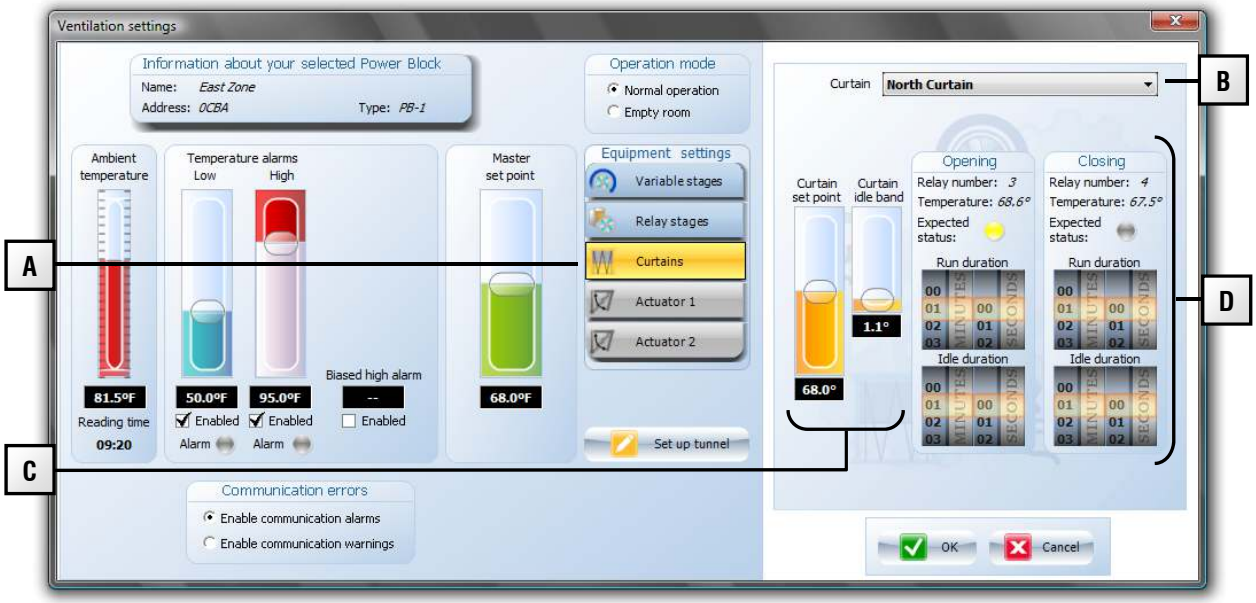
Curtains hold their position while the temperature is within the idle band of the set point. For example, if the set point is 80°F and the idle band is 2°F, the curtain holds its position when the temperature is between 79°F and 81°F.

If the temperature rises above the idle band (above 81°F in our example), the curtain opens for the open run duration. After opening, it holds its position for the open idle duration. If the temperature is still above the idle band, the curtain again opens for the open run duration and the process repeats.

If the temperature drops below the idle band (below 79°F in our example), the curtain closes for the close run duration. After closing, it holds its position for the close idle time. If the temperature is still below the idle band, the curtain again closes for the close run duration and the process repeats.


Time (duration)
Open idle (02:00 mm:ss)
After the curtain opens for the open run duration, it holds its position for the open idle duration.
Open run (00:30 mm:ss)
If the temperature rises above the idle band, the curtain opens for the open run duration.
Temperature
Set point (80°F)
Idle band (+/– 1°F)
When the temperature is within the idle band, the curtain remains in its current position.
Close run (01:00 mm:ss)
If the temperature drops below the idle band, the curtain closes for the close run duration.
Close idle (01:00 mm:ss)
After the curtain closes for the close run duration, it holds its position for the close idle duration.

The *Ventilation settings* window is where you program curtain settings.



A This button displays the curtain settings.

B This is where you select the curtain you want program.

C These are the set point and idle band settings for the selected curtain.

- To adjust a setting, click and drag its slider up or down.
- To adjust a setting by 0.1-degree or 1 percent increments, click the slider and then press UP or DOWN on your keyboard.
- To adjust a setting by 1.0-degree or 10 percent increments, click the slider and then press PGUP or PGDOWN.

D These are the opening and closing run and idle durations.

- To adjust a duration, click and drag the number up or down.
- To adjust a duration by 1 minute or 1 second increments, click the number and then press UP or DOWN on your keyboard.
- To adjust a duration by 10 minutes or 10 second increments, click the number and then press PGUP or PGDOWN.

- ◇ After the room is properly set up and balanced, you should not need to change the curtain settings. Changing the settings after the room is set up can affect the ventilation balance in the room. If you need to change settings after the room is set up, you should change the *Power Block settings*. For more information, read **Programming Power Block settings** on page 31.
- ◇ If the Power Block is in empty room mode, curtain settings are not available and curtains are closed.

- ◇ Use the **Curtain worksheet** on page 87 when programming curtains.

To program curtains

1. In the main window, click **Settings**, and then **Ventilation**.
2. Below *Your Power Blocks*, select the Power Block you want to program and then click **Edit settings**.
   The *Ventilation settings* window displays.
3. Below *Equipment settings*, click **Curtains**.
   The window displays the curtain settings.
4. If the curtain you want to program is not selected, beside *Curtain*, select the one you want.

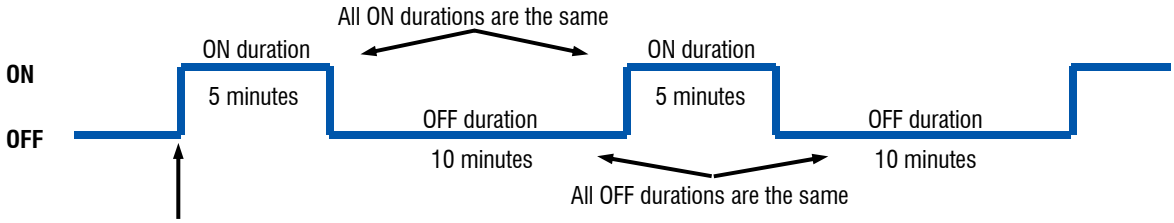
5. Adjust the settings.
   - To adjust the set point or idle band, click and drag its slider up or down. To adjust by 0.1-degree increments, click the slider and then press UP or DOWN on your keyboard.
   - To adjust a run or idle duration, click and drag its minute or second number up or down. You can also click the number and then press UP or DOWN on your keyboard.
6. Repeat steps 4 and 5 for each curtain you want to program.
7. Click **OK** to save the changes and return to the *Settings* window.

Programming heating, cooling, and duty-cycle relays

There are two types of heating and cooling element setups: *standard* and *duty cycle*. Programming a standard element means programming the temperature set point. Programming duty cycles means programming the temperature set point and the ON and OFF durations.

Before programming the relays, make sure you have them properly configured. For more information, read **Configuring relays for heating, cooling, and duty cycle** on page 24.

How temperature-based duty cycles work



The relay does not switch ON until a temperature condition has been met. For example, if the temperature rises above 85°F, switch on a mister for 5 minutes and then OFF for 10 minutes. Repeat this until the temperature is below 85°F.

For cooling elements

When the temperature is below the set point, the cooling element is off. When the temperature rises above the set point, the element switches on for the on duration and then off for the off duration. If the temperature drops below the set point, the duty cycle switches off and will not switch on again until the temperature rises above the set point.

For heating elements

When the temperature is above the set point, the heating element is off. When the temperature drops below the set point, the element switches on for the on duration and then off for the off duration. If the temperature rises above the set point, the duty cycle switches off and will not switch on again until the temperature drops below the set point.

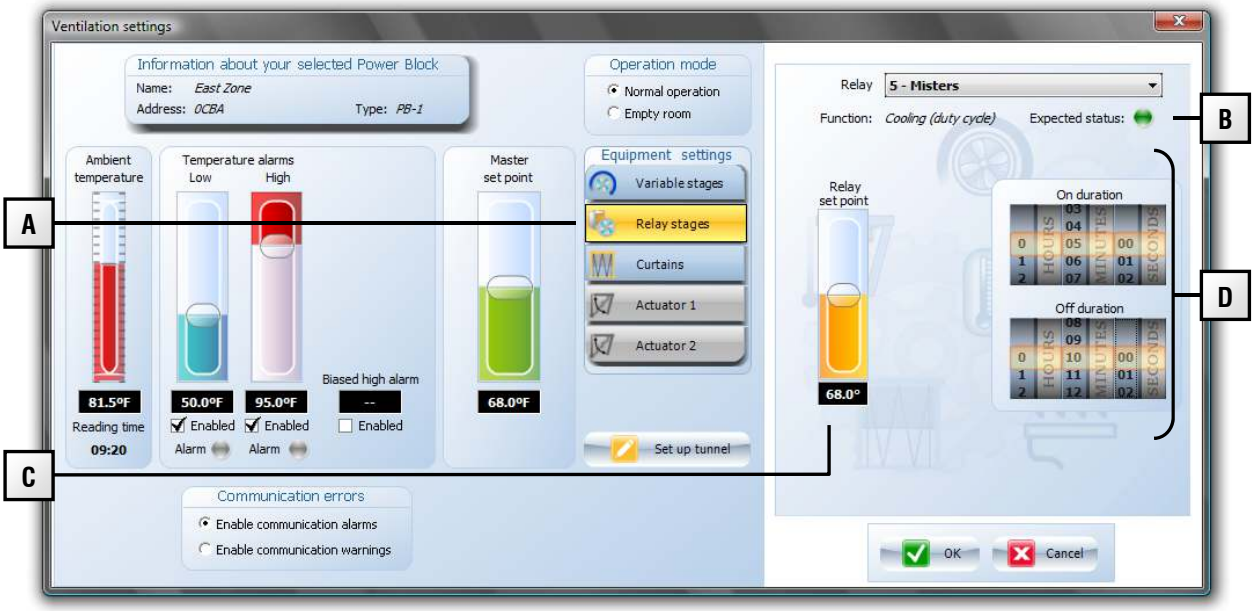
Notes about duty cycles

- Duty cycles always start with the ON duration.
- When Power Blocks restart after a power failure, duty cycles restart with the ON duration. If the duty cycles resetting could cause a problem at your site, timed events are another option to consider. For more information, read **Programming timed events** on page 59.
- The minimum ON or OFF duration is 5 seconds (0:00:05 hours:minutes:seconds).
- The maximum ON or OFF duration is 5 hours (5:00:00 hours:minutes:seconds)
- When there is a change to the settings:

  PBx Power Blocks immediately switch to the ON duration as soon as the Power Block receives the settings change.

  PB-1 to PB-5 Power Blocks must complete their current ON or OFF duration before any settings changes will take effect. For example, if you have a five-hour duty cycle that just started an ON or OFF duration and you change it to a ten-minute duty cycle, you will have to wait for the five-hour duration to complete before the new settings will take effect.

The *Ventilation settings* window is where you program single-stage heating and cooling relays.



A This button displays the relay settings.

B This is where you select the relay you want to program.

C This is the set point for the selected relay.

- To adjust the set point, click and drag its slider up or down.
- To adjust the set point by 0.1-degree or 1 percent increments, click the slider and then press UP or DOWN on your keyboard.
- To adjust the set point by 1.0-degree or 10 percent increments, click the slider and then press PGUP or PGDOWN.

D These are the duty cycle settings. Duty cycle settings display only if the duty cycle is enabled.

- To adjust a duration, click and drag the number up or down.
- To adjust a duration by 1 minute or 1 second increments, click the number and then press UP or DOWN on your keyboard.
- To adjust a duration by 10 minutes or 10 second increments, click the number and then press PGUP or PGDOWN.

- ◇ After the room is properly set up and balanced, you should not need to change the relay settings. Changing the settings after the room is set up can affect the ventilation balance in the room. If you need to change settings after the room is set up, you should change the *Power Block settings*. For more information, read **Programming Power Block settings** on page 31.
- ◇ If the Power Block is in empty room mode:
- ◇ **Cooling equipment** – no relay settings are available and equipment does not operate.
- ◇ **Heating equipment** – all settings are available. Equipment operates only if needed to keep the temperature at or above the set point.

- ◇ Use the **Heating and cooling elements worksheet** on page 88 when programming relays.

To program single-stage heating and cooling relays

1. In the main window, click **Settings**, and then **Ventilation**.
2. Below *Your Power Blocks*, select the Power Block you want to program and then click **Edit settings**.
   The *Ventilation settings* window displays.
3. Below *Equipment settings*, click **Stages**.
   The window displays the relay settings.
4. If the relay you want to program is not selected, beside *Relay*, select the one you want.

5. Adjust the settings.
   - To adjust the set point, click and drag the slider up or down. To adjust by 0.1-degree increments, click the slider and then press UP or DOWN on your keyboard.
   - To adjust an on or off duration, click and drag its hour, minute, or second number up or down. You can also click the number and then press UP or DOWN on your keyboard.
6. Repeat steps 4 and 5 for each relay you want to program.
7. Click **OK** to save the changes and return to the *Settings* window.

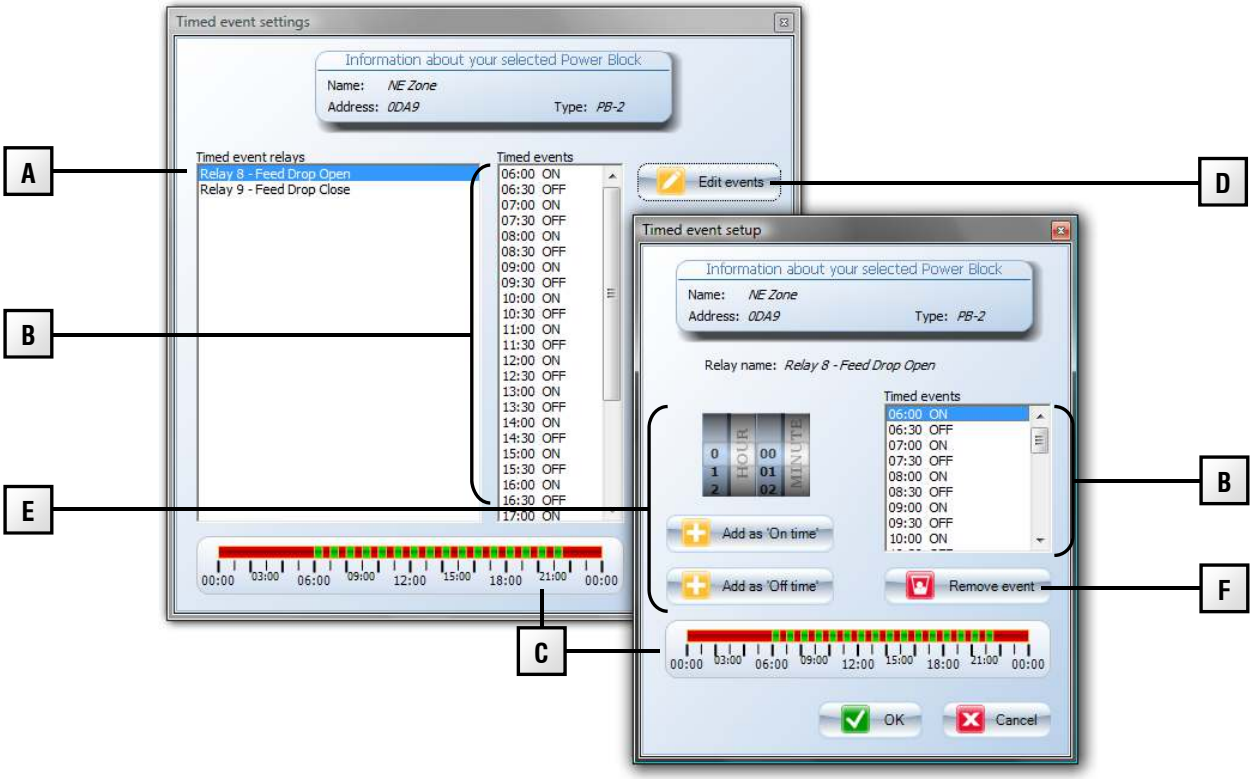
Programming timed events

Timed event relays control equipment such as lights that need to be switched ON or OFF during certain times of the day. Programming timed events means setting the *on* and *off* times.

Timed events must be paired. In other words, every time you set a relay to switch on, you must set a time for it to switch off.

Before setting up the timed events, make sure you have properly configured the relays. For more information, read **Configuring relays for timed events** on page 26.

The *Timed event settings* window is where you program timed events.



A These are the timed event relays for the selected Power Block.

B These are the timed events (ON and OFF times) for the selected relay.

C This is a graph of timed events for the selected relay. The green sections represent when the relay is on; red sections represent when the relay is off.

D This button opens the *Timed events setup* window, which is where you add and remove timed events for the selected relay.

E This is where you add a timed event. To set the time, click and drag the number for hour or minute up or down. You can also click the number and then press UP or DOWN on your keyboard. To add the event to the list, click **Add as…**.

F This button removes the selected event.

Use the **Timed events worksheet** on page 89 when programming timed events.

- ◇ Each PBx Power Block can store up to 250 events, no matter how many relays are configured.
- ◇ Timed events for PBx Power Blocks are stored on the Power Block and do not rely on the software for timing. This means the timed events will function even if there is no communication with the software.
- ◇ Timed events for PB-1 to PB-6 Power Blocks are stored in the software. This means timed events will function only if there is communication with the software.

To program timed events

1. In the main window, click **Settings**, and then **Ventilation**.
2. Below *Your Power Blocks*, select the Power Block you want to program and then click **Edit settings**.
   The *Timed event settings* window displays.
3. If the relay you want to program is not selected, below *Timed event relays*, select the relay you want.
4. Click **Edit events**.
   The *Timed event setup* window displays.

5. Program the timed events.
   - To set an event time, click and drag the number for hour or minute up or down. You can also click the number and then press UP or DOWN on your keyboard. To add the event to the list, click **Add as…**.
   - To remove an event, select the event you want to remove and then click **Remove event**.
6. Repeat steps 3 to 5 for each event you want to program.
7. Click **OK** to save the changes and return to the *Timed event settings* window.
8. Click **Close** to return to the *Settings* window.

Chapter 3: Analyzing data

- Tools for analyzing ventilation performance
- Select Ventilation reports
- Select Ventilation charts

Tools for analyzing ventilation performance

Select Ventilation has three main tools for analyzing data.

- Power Block status viewer (below)
- Reports (on page 65)
- Charts (on page 78)

Viewing the status of a Power Block

The *Power Block status viewer* displays the status of the Power Block's variable and relay stages. Check the status viewer regularly and make sure the controls are functioning normally.

Status for PBx Power Blocks

Select Ventilation retrieves the actual status from the Power Block.

Status for PB-1 to PB-6 Power Blocks

Select Ventilation calculates and displays information based on the ambient temperature and settings.

- For variable stages, the display shows the expected speed of the fan or percentage of output.
- For actuators, the display shows the expected position (percentage open).
- For relays, the display shows the expected state: *on*, *off*, or *cycling*. Cycling is for duty cycle or curtain relays only; it means the temperature condition has been met and the relay is in an *on duration* or *off duration*.

To view the status of a Power Block from the *Settings* window

1. In the main window, click **Settings**, and then **Ventilation**.
2. Below *Your Power Blocks*, select the Power Block you want to view and then click **Status viewer**. The *Power Block status viewer* displays.
3. Click **Close** to return to the *Settings* window.

To view the status of a Power Block from the *Reports* window

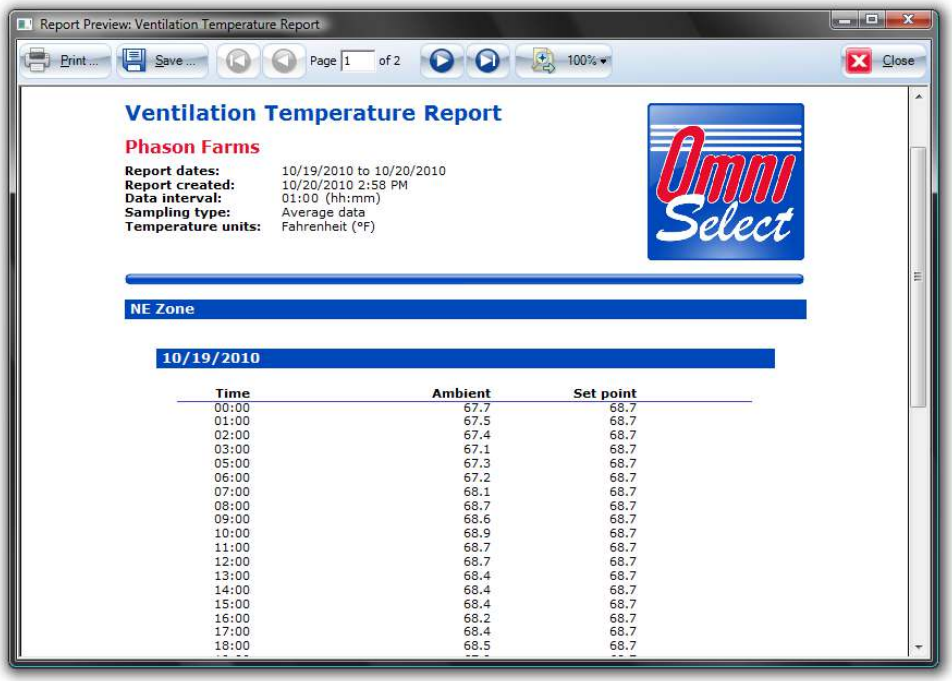
1. In the main window, click **Reports**, and then **Ventilation**.
2. Below *Viewer*, select *Status viewer*.
3. Below *Your Power Blocks*, select the Power Block you want to view and then click **Show viewer**. The *Power Block status viewer* displays.
4. Click **Close** to return to the *Reports* window.

Select Ventilation reports

One of the great advantages of Select Ventilation is the detailed reports that are available. All reports are available in preview/PDF format. The Ventilation Temperature Report is also available in CSV format.

Preview/PDF

These reports display using OMNI-Select's built-in Report Preview window. From there, you can print or save reports as a PDF (portable document format).



CSV

You can import CSV reports into a third-party reporting, database, or spreadsheet program, or e-mail them off-site for evaluation. CSV reports are not suitable for normal viewing.

Report descriptions

- Ventilation Temperature Report (on page 66)
- Ventilation Status Report (on page 68)
- Ventilation Settings History (on page 71)
- PBx Relay Runtime Report (on page 73)

Ventilation Temperature Report

Ventilation Temperature Reports provide detailed temperature history. In addition to selecting the Power Blocks you want in the report, you select a sampling interval and type.

Sampling interval

Sampling interval is *how often* there is an entry in the report. You can select a sampling interval of between 10 minutes and 24 hours. In the following example, the sampling interval is 10 minutes.

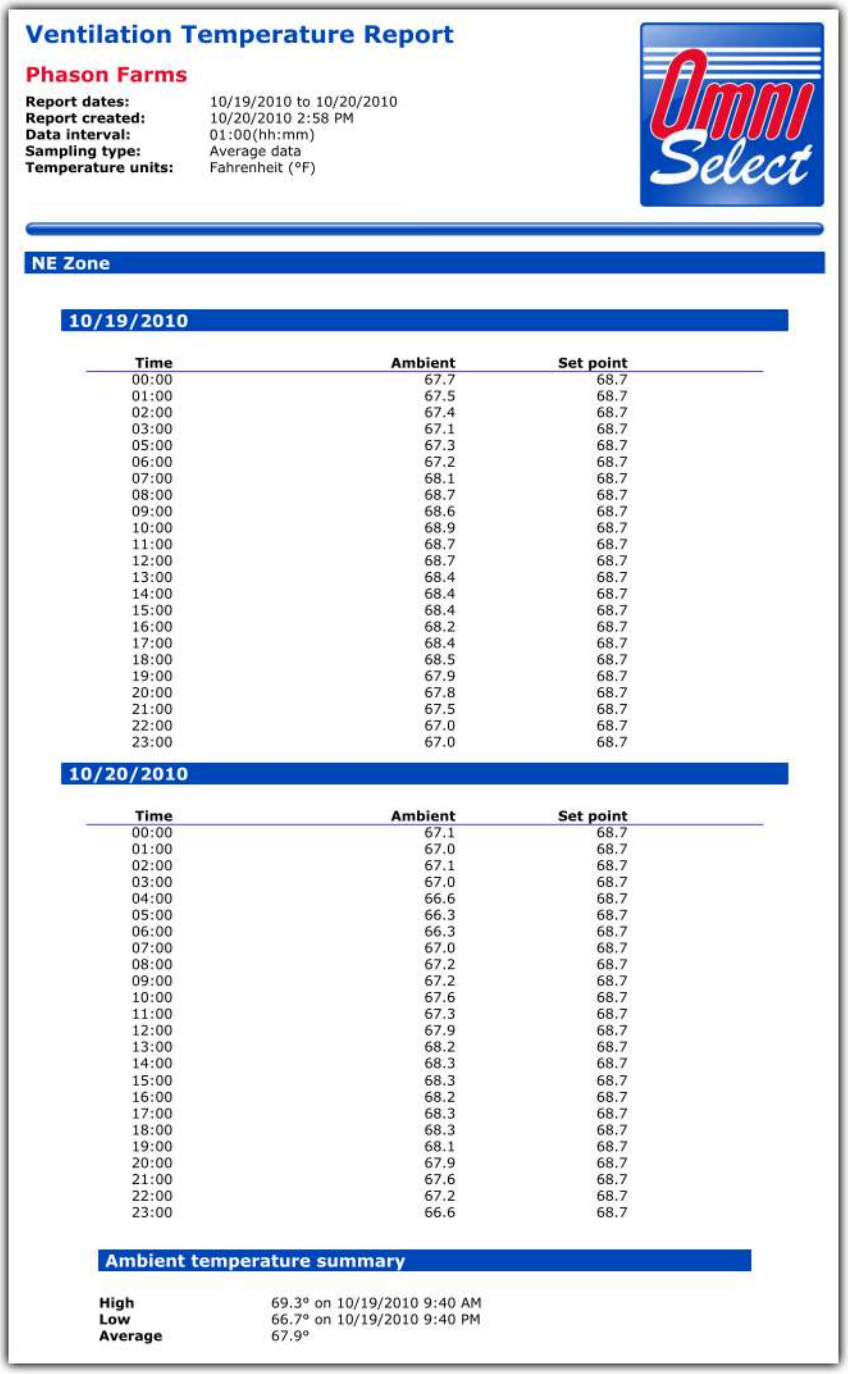
```
9:10    68.0°F
9:20    69.5°F
9:30    70.5°F
```

Sampling type

Sampling type is *how* you read the data at the sampling intervals. If you select *point data*, you will get the exact reading for that interval. If you select *average*, you will get the average of the data during that interval.

- In the example above, if you select *point data* for sampling type and *30 minutes* for sampling interval, the temperature in the report would be 70.5°F, the actual reading at the 30-minute interval.
- If you select *average* for sampling type and *30 minutes* for sampling interval, the temperature in the report would be 69.3°F, the average of the three readings during the 30 minutes.

Ventilation Temperature Reports are available in preview/PDF and CSV formats.



Ventilation Temperature Report

Phason Farms

Report dates: 10/19/2010 to 10/20/2010
Report created: 10/20/2010 2:58 PM
Data interval: 01:00(hh:mm)
Sampling type: Average data
Temperature units: Fahrenheit (°F)

NE Zone

10/19/2010

Time	Ambient	Set point
00:00	67.7	68.7
01:00	67.5	68.7
02:00	67.4	68.7
03:00	67.1	68.7
05:00	67.3	68.7
06:00	67.2	68.7
07:00	68.1	68.7
08:00	68.7	68.7
09:00	68.6	68.7
10:00	68.9	68.7
11:00	68.7	68.7
12:00	68.7	68.7
13:00	68.4	68.7
14:00	68.4	68.7
15:00	68.4	68.7
16:00	68.2	68.7
17:00	68.4	68.7
18:00	68.5	68.7
19:00	67.9	68.7
20:00	67.8	68.7
21:00	67.5	68.7
22:00	67.0	68.7
23:00	67.0	68.7

10/20/2010

Time	Ambient	Set point
00:00	67.1	68.7
01:00	67.0	68.7
02:00	67.1	68.7
03:00	67.0	68.7
04:00	66.6	68.7
05:00	66.3	68.7
06:00	66.3	68.7
07:00	67.0	68.7
08:00	67.2	68.7
09:00	67.2	68.7
10:00	67.6	68.7
11:00	67.3	68.7
12:00	67.9	68.7
13:00	68.2	68.7
14:00	68.3	68.7
15:00	68.3	68.7
16:00	68.2	68.7
17:00	68.3	68.7
18:00	68.3	68.7
19:00	68.1	68.7
20:00	67.9	68.7
21:00	67.6	68.7
22:00	67.2	68.7
23:00	66.6	68.7

Ambient temperature summary

High	69.3° on 10/19/2010 9:40 AM
Low	66.7° on 10/19/2010 9:40 PM
Average	67.9°

Information about the report

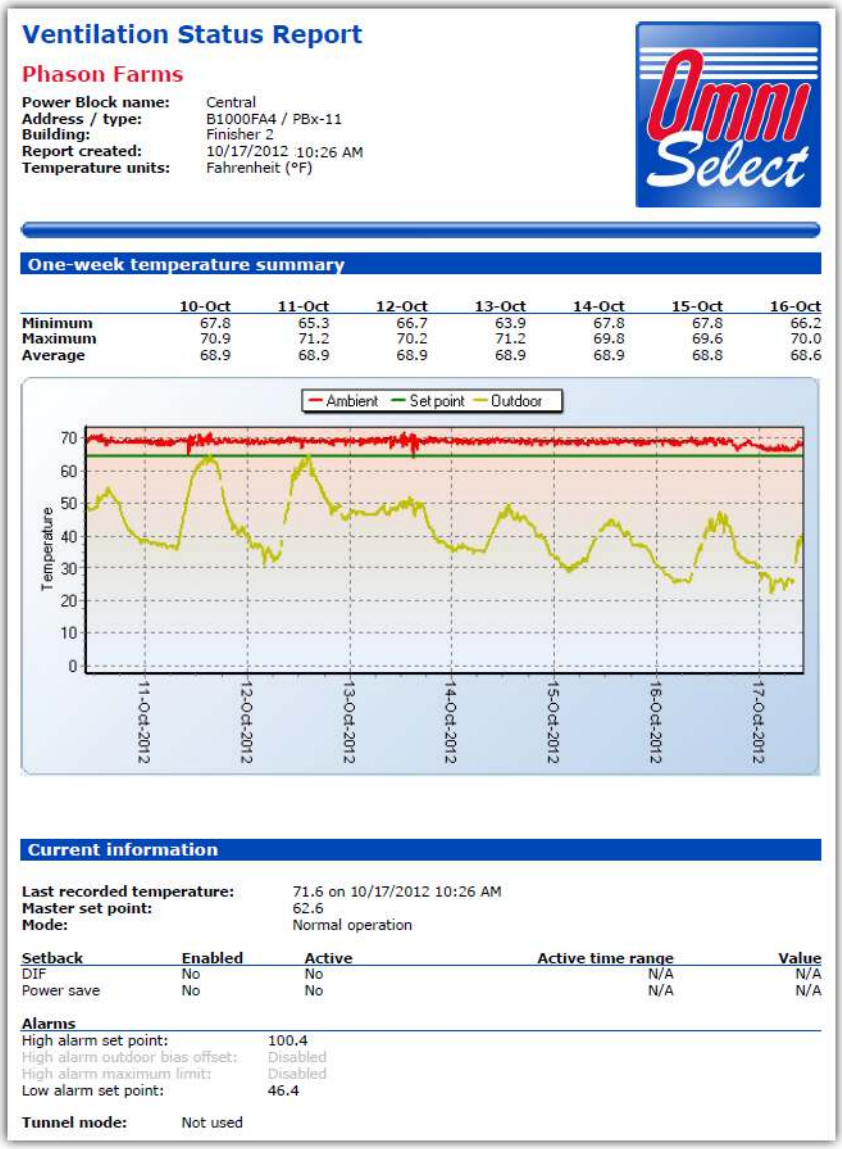
Temperature data, sorted by Power Block, date, and time

Temperature summary for each Power Block

Ventilation Status Report

The Ventilation Status Report is a combination of charts, tables, and diagrams that provide an "information snapshot" for each selected Power Block. Status reports are helpful for analyzing problems in rooms or zones.

Ventilation Status Reports are available in preview/PDF format only. The following example shows sections from several different Power Blocks so that you can get a better idea of what is available.



Ventilation Status Report

Phason Farms

Power Block name: Central
Address / type: B1000FA4 / PBx-11
Building: Finisher 2
Report created: 10/17/2012 10:26 AM
Temperature units: Fahrenheit (°F)

One-week temperature summary

	10-Oct	11-Oct	12-Oct	13-Oct	14-Oct	15-Oct	16-Oct
Minimum	67.8	65.3	66.7	63.9	67.8	67.8	66.2
Maximum	70.9	71.2	70.2	71.2	69.8	69.6	70.0
Average	68.9	68.9	68.9	68.9	68.9	68.8	68.6

Current information

Last recorded temperature: 71.6 on 10/17/2012 10:26 AM
Master set point: 62.6
Mode: Normal operation

Setback	Enabled	Active	Active time range	Value
DIF	No	No	N/A	N/A
Power save	No	No	N/A	N/A

Alarms

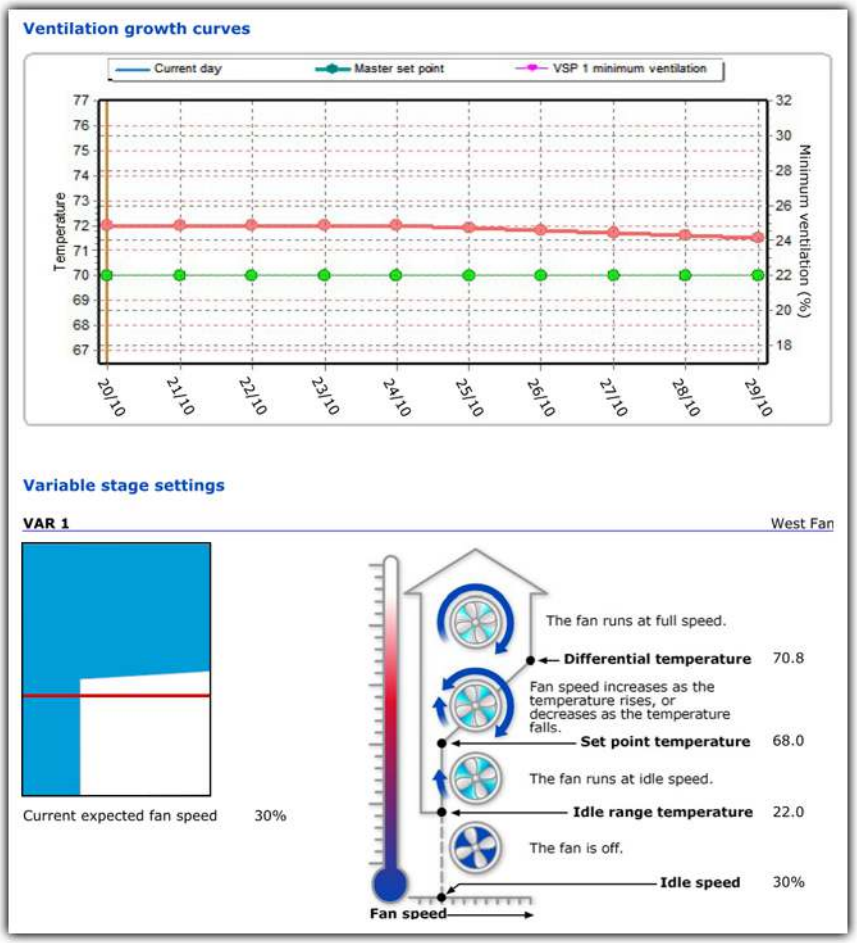
High alarm set point: 100.4
High alarm outdoor bias offset: Disabled
High alarm maximum limit: Disabled
Low alarm set point: 46.4

Tunnel mode: Not used

Information about the report

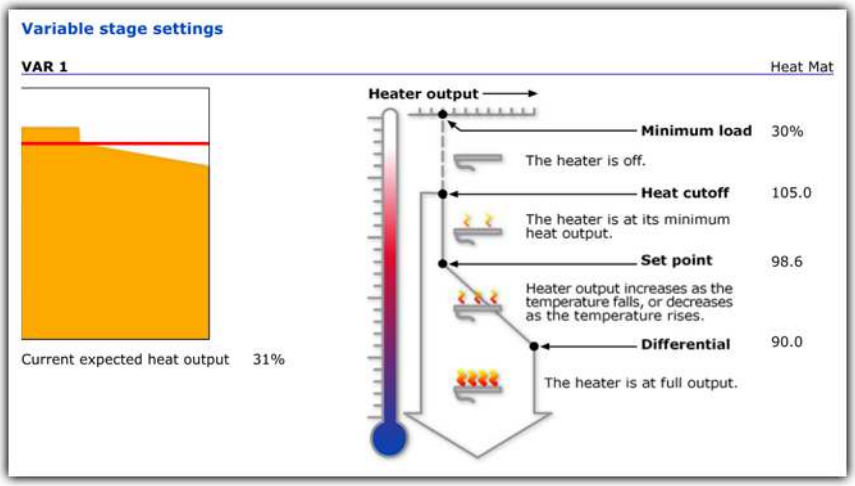
A one-week temperature summary in chart and table format

Current temperature and settings that apply to the Power Block and all its equipment

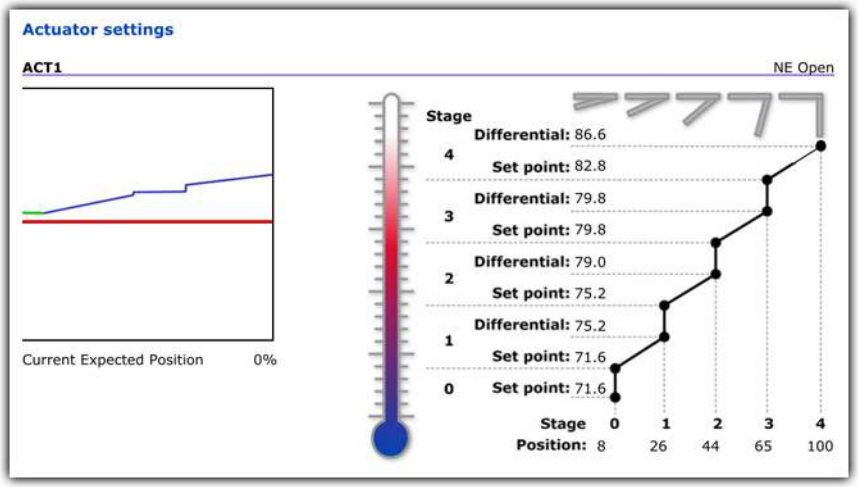


Growth curves, in chart format

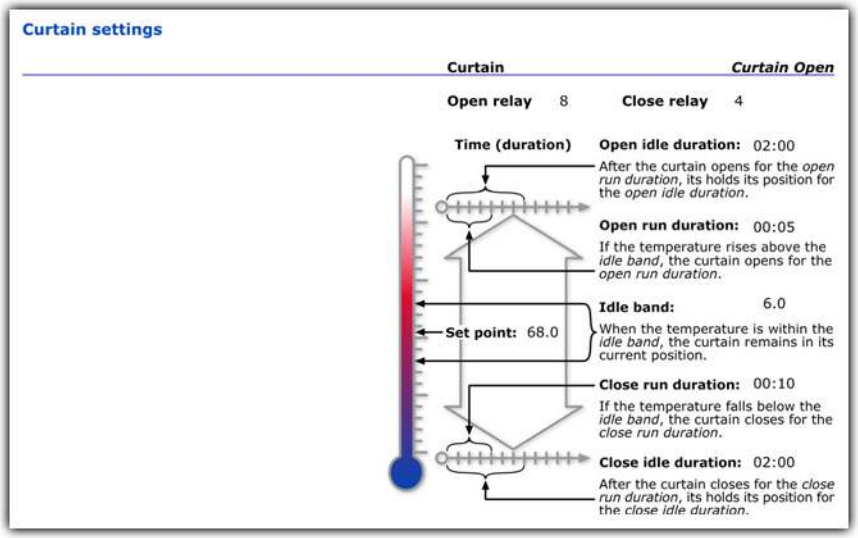
Variable stage cooling status and settings



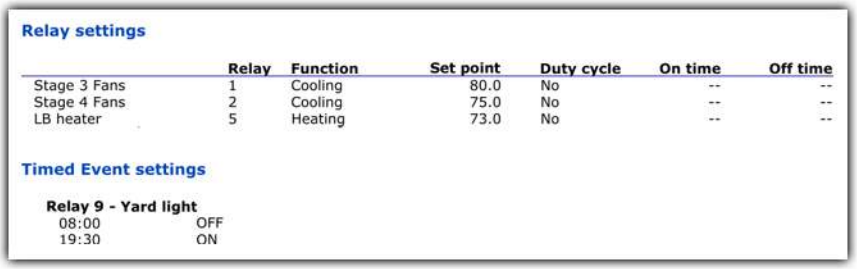
Variable stage heating status and settings



Actuator status and settings


Curtain settings
Curtain
Curtain Open
Open relay 8
Close relay 4
Time (duration)
Open idle duration: 02:00
After the curtain opens for the open run duration, its holds its position for the open idle duration.
Open run duration: 00:05
If the temperature rises above the idle band, the curtain opens for the open run duration.
Idle band: 6.0
Set point: 68.0
When the temperature is within the idle band, the curtain remains in its current position.
Close run duration: 00:10
If the temperature falls below the idle band, the curtain closes for the close run duration.
Close idle duration: 02:00
After the curtain closes for the close run duration, its holds its position for the close idle duration.

Curtain settings


Relay settings
Relay Function Set point Duty cycle On time Off time
Stage 3 Fans 1 Cooling 80.0 No -- --
Stage 4 Fans 2 Cooling 75.0 No -- --
LB heater 5 Heating 73.0 No -- --
Timed Event settings
Relay 9 - Yard light
08:00 OFF
19:30 ON

Relay configuration and settings, sorted by relay number

Timed events, sorted by relay and time

Ventilation Settings History Report

The Ventilation Settings History Report is a combination of tables and diagrams that provide an overview of the settings for the selected Power Block and time.

Ventilation Settings History Reports are available in preview/PDF format only. The following example shows sections from different Power Blocks so that you can get a better idea of what is available.

Ventilation Settings History

Phason Farms

Power Block name: Central
Address / Type: 0FA4 / PB-2
Building: Finisher 2
Report created: 10/27/2010 2:27 PM
Temperature units: Fahrenheit (°F)

Edited on: 10/21/2010 9:34 AM
Edited by: User: demo

Details

Master set point: 73.0
Mode: Normal operation

Setback	Enabled	Active	Active time range	Value
DIF	No	No	N/A	N/A
Power save	No	No	N/A	N/A

Alarms
High temperature: 95.0
Low temperature: 55.0

Tunnel mode: Used
Set point: 90.0
Equipment:
South Fans - Relay off
North Fans - Relay off
S Curtain - Curtain closed

Variable stage settings

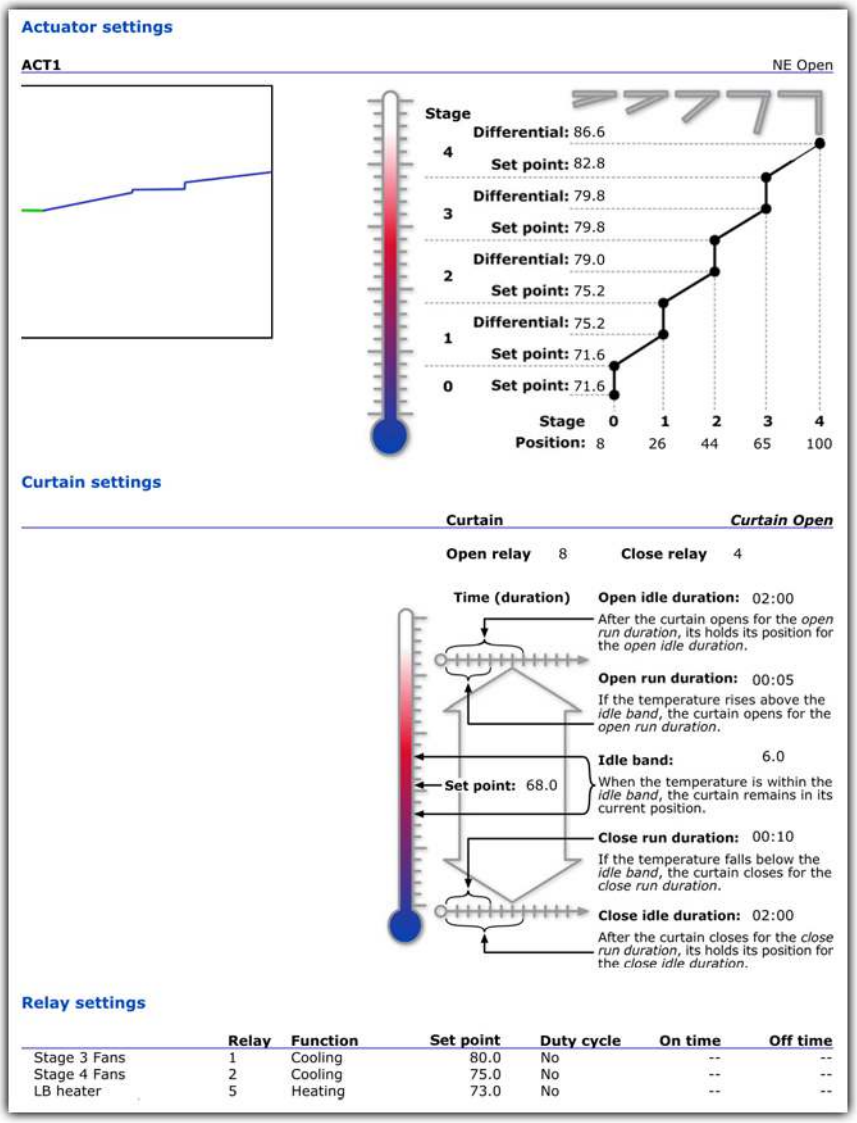
VAR 1 South Fans

The fan runs at full speed.
Differential temperature 75.0
Fan speed increases as the temperature rises, or decreases as the temperature falls.
Set point temperature 67.5
The fan runs at idle speed.
Idle range temperature 60.0
The fan is off.
Idle speed 30%
Fan speed

Information about the report

Historical settings that apply to the Power Block and all its equipment

Variable stage cooling settings


Actuator settings
ACT1
NE Open
Stage
Differential: 86.6
4
Set point: 82.8
Differential: 79.8
3
Set point: 79.8
Differential: 79.0
2
Set point: 75.2
Differential: 75.2
1
Set point: 71.6
0
Set point: 71.6
Stage 0 1 2 3 4
Position: 8 26 44 65 100
Curtain settings
Curtain
Curtain Open
Open relay 8
Close relay 4
Time (duration)
Open idle duration: 02:00
After the curtain opens for the open run duration, its holds its position for the open idle duration.
Open run duration: 00:05
If the temperature rises above the idle band, the curtain opens for the open run duration.
Idle band: 6.0
Set point: 68.0
When the temperature is within the idle band, the curtain remains in its current position.
Close run duration: 00:10
If the temperature falls below the idle band, the curtain closes for the close run duration.
Close idle duration: 02:00
After the curtain closes for the close run duration, its holds its position for the close idle duration.
Relay settings
Relay Function Set point Duty cycle On time Off time
Stage 3 Fans 1 Cooling 80.0 No -- --
Stage 4 Fans 2 Cooling 75.0 No -- --
LB heater 5 Heating 73.0 No -- --

Actuator settings

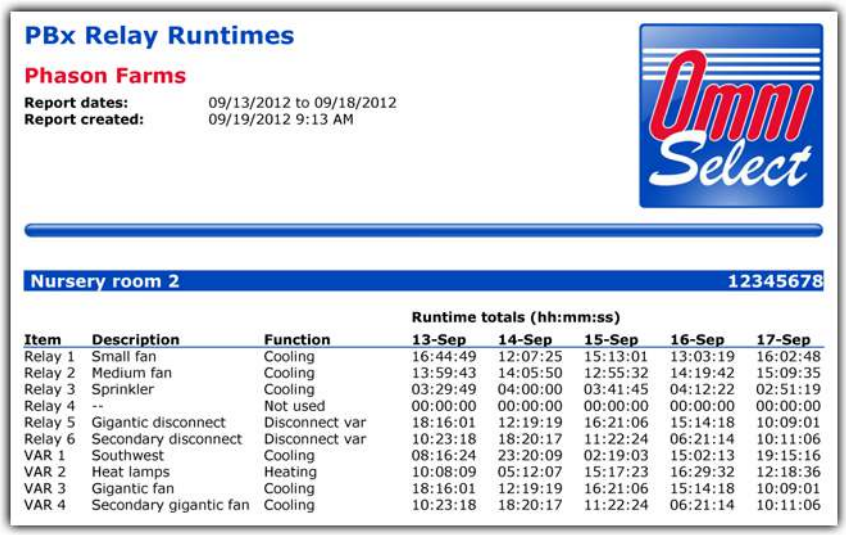
Curtain settings

Relay configuration and settings

PBx Relay Runtime Report

The PBx Relay Runtime Report lists the duration, in hours:minutes:seconds, that each variable stage and relay was on during each day. You select the Power Block(s) and date range.

The PBx Relay Runtime Report is available in preview/PDF format only.



PBx Relay Runtimes

Phason Farms

Report dates: 09/13/2012 to 09/18/2012
Report created: 09/19/2012 9:13 AM

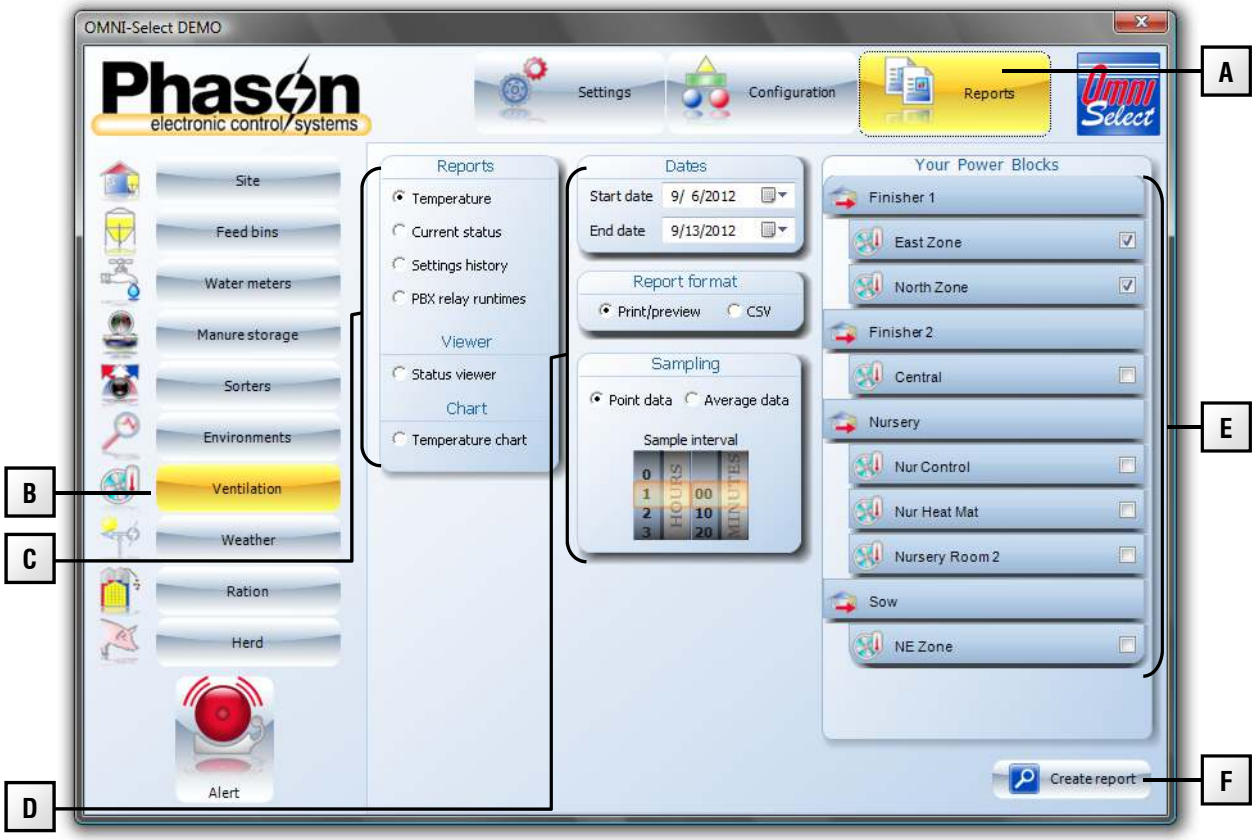
Nursery room 2 **12345678**

			Runtime totals (hh:mm:ss)				
Item	**Description**	**Function**	**13-Sep**	**14-Sep**	**15-Sep**	**16-Sep**	**17-Sep**
Relay 1	Small fan	Cooling	16:44:49	12:07:25	15:13:01	13:03:19	16:02:48
Relay 2	Medium fan	Cooling	13:59:43	14:05:50	12:55:32	14:19:42	15:09:35
Relay 3	Sprinkler	Cooling	03:29:49	04:00:00	03:41:45	04:12:22	02:51:19
Relay 4	--	Not used	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00
Relay 5	Gigantic disconnect	Disconnect var	18:16:01	12:19:19	16:21:06	15:14:18	10:09:01
Relay 6	Secondary disconnect	Disconnect var	10:23:18	18:20:17	11:22:24	06:21:14	10:11:06
VAR 1	Southwest	Cooling	08:16:24	23:20:09	02:19:03	15:02:13	19:15:16
VAR 2	Heat lamps	Heating	10:08:09	05:12:07	15:17:23	16:29:32	12:18:36
VAR 3	Gigantic fan	Cooling	18:16:01	12:19:19	16:21:06	15:14:18	10:09:01
VAR 4	Secondary gigantic fan	Cooling	10:23:18	18:20:17	11:22:24	06:21:14	10:11:06

Information about the report

The relay and variable stage ON durations, sorted by date

Creating reports



A This button displays the *Reports* window.

B This button displays the available Select Ventilation reports, viewer, and chart.

C This is where you select what you want to view or create.

D If required, this is where you select the dates, format, and sampling information. For more information, read **Formats, dates, and other information** on page 75.

E This is a list of Power Blocks in each building at your site and where you select the Power Block(s) you want.

F This button creates and/or displays the chart, viewer, or report.

Formats, dates, and other information

The following table shows the formats available, date type, and other information required for the reports, viewer, and chart.

Name	Format	Date type	Other information
Ventilation Temperature Report	Preview/PDF/CSV	Date range	Power Block(s)
Ventilation Status Report	Preview/PDF	Current	Power Block(s)
Ventilation Settings History Report	Preview/PDF	Current or specific settings change	Power Block
PBx Relay Runtime Report	Preview/PDF	Date range	PBx only
Power Block status viewer	Viewer	Current	Power Block
Temperature chart	Chart	Date range	Power Block

To create Ventilation Temperature Reports

1. In the main window, click **Reports**, and then **Ventilation**.
2. Below *Reports*, select *Temperature report*.
   The window updates and adds additional information.
3. Below *Your Power Blocks*, select one or more of Power Blocks.
4. Below *Dates*, select the start and end dates. For more information, read **Selecting dates** on page 77.
5. If you want to export the data to third-party software, below *Report format*, select *CSV*.
6. Below *Sampling*, select *Point data* or *Average data*.
7. Below *Sample interval*, click and drag the number for hour or minutes up or down. You can also click the number and then press UP or DOWN on your keyboard.
8. Click **Create report**.
   - If you created a preview/PDF report, OMNI-Select displays your report in the *Report Preview* window. From here, you can print or save your report by clicking the appropriate button.
   - If you created a CSV report, the *Save As* window displays so that you can select a location and save your report. After saving your report, it displays in your default editor.

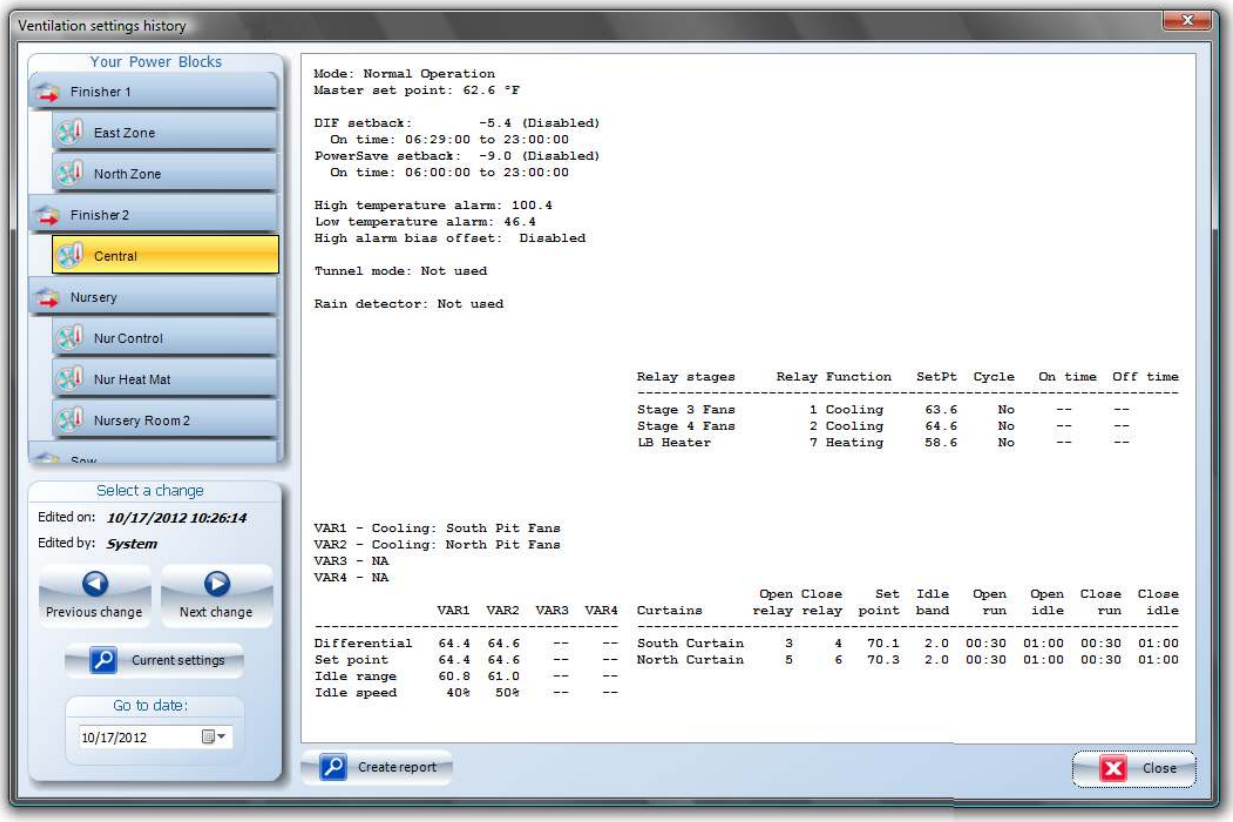
   - In Windows Vista and Windows 7, the default reports directory is `C:\Users\<username>\Documents\Phason\OmniSelect\Reports`. <username> is the name you use to log on to your computer.
   - In Windows XP, it is `C:\Documents and Settings\<username>\My Documents\Phason\OmniSelect\Reports`.
   - Reports print to the default printer using the default settings.
9. Click **Close** to return to the *Reports* window.

To create Current Status Reports

1. In the main window, click **Reports**, and then **Ventilation**.
2. Below *Reports*, select *Current status report*.
   The window updates.
3. Below *Your Power Blocks*, select one or more of Power Blocks.
4. Click **Create report**.
   OMNI-Select displays your report in the *Report Preview* window. From here, you can print or save your report by clicking the appropriate button.
5. Click **Close** to return to the *Reports* window.

To create Settings History Reports

1. In the main window, click **Reports**, and then **Ventilation**.
2. Below *Reports*, select *Settings history*.
   The window updates.
3. Below *Your Power Blocks*, select a Power Block.
4. Click **Create report**.
   The *Ventilation settings history* window displays.


Ventilation settings history
Your Power Blocks
Finisher 1
East Zone
North Zone
Finisher 2
Central
Nursery
Nur Control
Nur Heat Mat
Nursery Room 2
Select a change
Edited on: 10/17/2012 10:26:14
Edited by: System
Previous change
Next change
Current settings
Go to date:
10/17/2012
Mode: Normal Operation
Master set point: 62.6 °F
DIF setback: -5.4 (Disabled)
On time: 06:29:00 to 23:00:00
PowerSave setback: -9.0 (Disabled)
On time: 06:00:00 to 23:00:00
High temperature alarm: 100.4
Low temperature alarm: 46.4
High alarm bias offset: Disabled
Tunnel mode: Not used
Rain detector: Not used
Relay stages Relay Function SetPt Cycle On time Off time
Stage 3 Fans 1 Cooling 63.6 No -- --
Stage 4 Fans 2 Cooling 64.6 No -- --
LB Heater 7 Heating 58.6 No -- --
VAR1 - Cooling: South Pit Fans
VAR2 - Cooling: North Pit Fans
VAR3 - NA
VAR4 - NA
VAR1 VAR2 VAR3 VAR4
Differential 64.4 64.6 -- --
Set point 64.4 64.6 -- --
Idle range 60.8 61.0 -- --
Idle speed 40% 50% -- --
Curtains Open relay Close relay Set point Idle band Open run Open idle Close run Close idle
South Curtain 3 4 70.1 2.0 00:30 01:00 00:30 01:00
North Curtain 5 6 70.3 2.0 00:30 01:00 00:30 01:00
Create report
Close

5. Select the settings you want. As you make changes, the preview area updates.
   - To change the Power Block, below *Your Power Blocks*, select the one you want.
   - To move forward through the settings, click **Next change**; to move backward, click **Previous change**.
   - To load the current settings, click Current settings.
   - To load the settings from a specific day, below *Date*, select the date you want. For more information, read **Selecting dates** below.
6. Click **Create report**.
   OMNI-Select displays your report in the *Report Preview* window. From here, you can print or save your report by clicking the appropriate button.
7. Click **Close** to return to the *Reports* window.

To create PBx Relay Runtime Reports

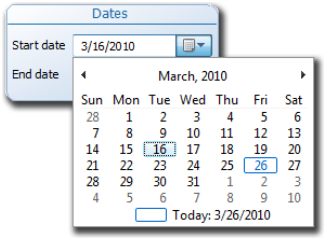
1. In the main window, click **Reports**, and then **Ventilation**.
2. Below *Reports*, select *PBx relay runtimes*.
   The window updates.
3. Below *Your Power Blocks*, select one or more PBx Power Blocks.
4. Below *Dates*, select the start and end dates. For more information, read **Selecting dates** below.
5. Click **Create report**.
   OMNI-Select displays your report in the *Report Preview* window. From here, you can print or save your report by clicking the appropriate button.
6. Click **Close** to return to the *Reports* window.

Selecting dates

Some Select Ventilation reports and charts require a date range.

To select date ranges

1. Beside *Start date*, click ▼.
   The date selector displays.



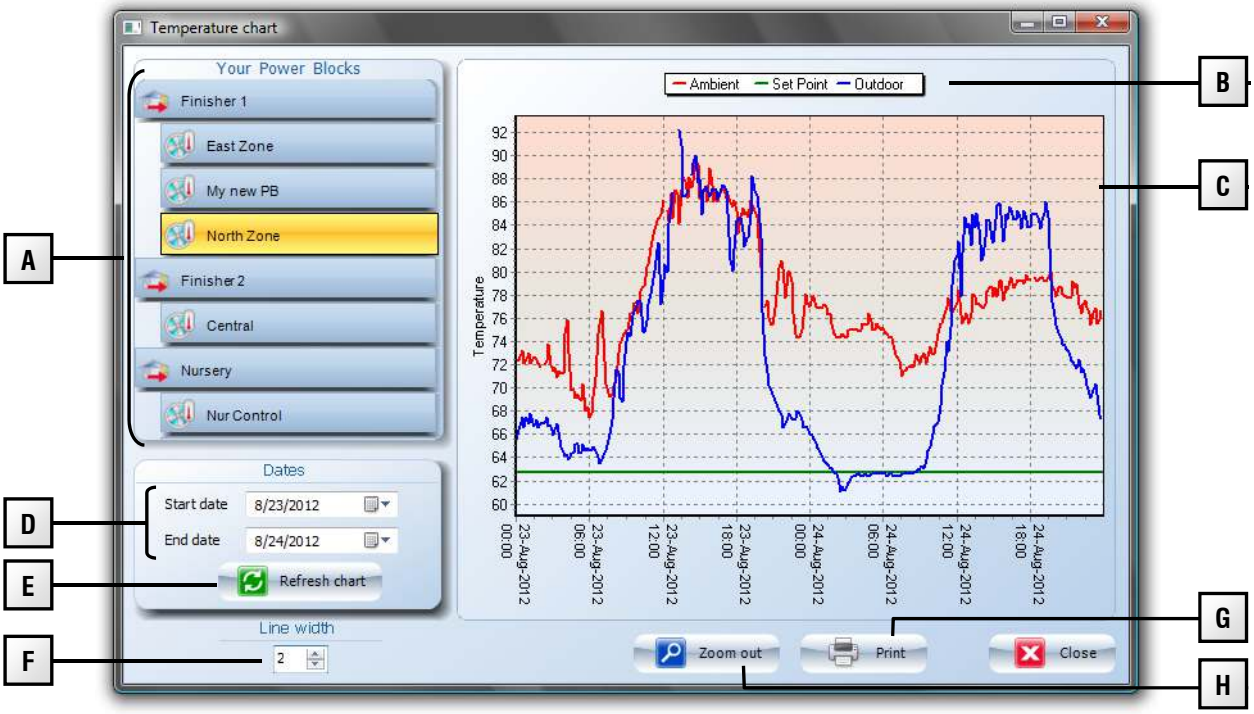
2. Select a start date:
   - To move backward or forward through the months, click ◀ or ▶.
   - To select a specific month, click the month on the calendar and then select the month you want.
   - To move forward and backward through the years, double-click the year on the calendar and then select the year you want.
3. Repeat steps 1 and 2 for the end date.

Select Ventilation charts

Select Ventilation charts historical ambient and set point temperatures for a Power Block. Temperature charts, which are in-line format, are useful for tracking down problems that have occurred in a room or zone, analyzing the effects of different ventilation strategies, and monitoring environmental conditions.

You cannot save temperature charts, but you can print them or view them again as long as the information remains in the database.

Viewing charts



A This is a list of Power Blocks in each building at your site and where you select the Power Block you want to view.

B This is the legend for the chart.

C This is the chart for the selected Power Block and date range. You can zoom in and scroll along the chart.

D This is where you select the date range.

E This button refreshes the chart and leaves the zoom level the same. Refresh the chart if you change the date range.

F This allows you to change the width of the lines in the chart.

G This button prints the chart.

H This button zooms out from the chart.

Outdoor temperature displays only if you have an outdoor temperature probe. For more information, read the *Monitoring outdoor temperatures* section of the **OMNI Select user manual**.

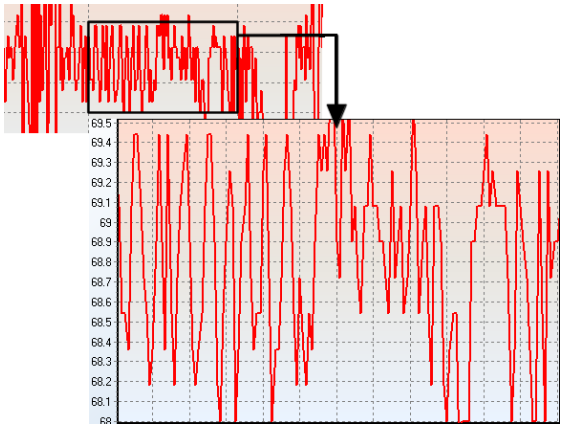
To view charts

1. In the main window, click **Reports**, and then **Ventilation**.
2. Below *Chart*, select *Temperature chart*.
   The window updates.
3. Below *Dates*, select the start and end date for the chart. For more information, read **Selecting dates** on page 77.
4. Below *Your Power Blocks*, select the Power Block you want in the chart.
5. Click **Show chart**.
   The Temperature chart displays.
6. Make any changes to the chart.
   - To change the Power Block, below *Your Power Blocks*, select the one you want to view.
     As you select different Power Blocks, the chart updates.
   - To change the date range, below *Dates*, select a new start and/or and date and then click **Refresh chart**.
     The chart updates but if you zoomed in on the chart, the zoom remains the same.
7. Click **Close** to return to the *Reports* window.

To zoom and pan charts

You can zoom in, zoom out, and scroll along a chart.

- **To zoom in**, click and drag to select the area you want to magnify and then release the mouse button. A chart magnifies the area you selected.
- **To zoom out**, click on the chart, drag to the top-left and then release the mouse button, or click **Zoom out**. The chart returns to normal magnification.
- **To scroll along**, right-click the chart and drag the mouse in the direction you want the chart to move.



You can make the chart larger or smaller by resizing the window. Click the bottom-right corner of the window and drag it.

Appendices

- Appendix A: Worksheets
- Appendix B: Motor curves
- Appendix C: Glossary

Appendix A: Worksheets

Appendix A contains worksheets to help you program Select Ventilation.

- Master settings worksheet (on page 82)
- Variable stage settings worksheet (on page 83)
- Actuator settings worksheet (on page 85)
- Curtain worksheet (on page 87)
- Heating and cooling elements worksheet (on page 88)
- Timed events worksheet (on page 89)

There is one copy of each worksheet. If you need more than one copy, make additional copies of the blank worksheets before filling them in.

Master settings worksheet

- Enter your Power Block settings in the table below.
- Use the information in the table to program your master settings in Select Ventilation.

Configuration and information					
Name			Address		
Building			Type		
Master set point					
Master set point①			This is the target temperature.		
Growth curves					
	Enabled?		Set point		
Master set point curve	Yes	No	There are too many details to show curve settings here.		
VAR 1 min ventilation	Yes	No			
VAR 2 min ventilation	Yes	No			
VAR 3 min ventilation	Yes	No			
VAR 4 min ventilation	Yes	No			
Alarm settings					
Low temperature ①			The lowest temperature to which you can safely allow the zone to fall; cannot be higher than high alarm temperature		
High temperature ①			The highest temperature to which you can safely allow the zone to rise; cannot be lower than low alarm temperature		
Bias offset ③			The number of degrees to add to the high alarm temperature when the outdoor temperature is higher than the alarm temperature.		
High alarm maximum ①			The highest temperature to which you can safely allow the zone to rise; cannot be lower than high alarm temperature		
Temperature setback					
	Enabled?		Start time	Stop time	Setback②
DIF	Yes	No	:	:	
Power save	Yes	No	:	:	

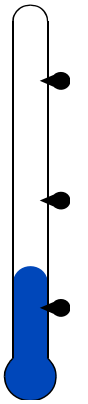
① Temperature in °F/°C, range: 14.0 to 122.0°F, –10.0 to 50.0°C
② Temperature in °F/°C, range: 0.0 to 25.0°F, 0.0 to 14.0°C
③ Temperature in °F/°C, range: 0.0 to 20.0°F, 0.0 to 11.1°C

Variable stage settings worksheet

Variable cooling stages

Programming variable cooling stages means programming the following settings. For more information, read **Programming variable stages** on page 46.

Information					
Name					Address
Building					Type
Setting	**VAR 1**	**VAR 2**	**VAR 3**	**VAR 4**	**Description**
Differential ①					◇ The fan is at full speed when the temperature is at or above this value.
Set point ①					◇ Fan speed increases when the temperature is between this value and the differential temperature. ◇ The fan is at idle speed when the temperature is between this value and the idle range.
Idle range ①					◇ The fan is at idle speed when the temperature is between this value and the set point. ◇ The fan is off when the temperature is below this value.
Idle speed ②					◇ The speed the fan is at when the temperature is between the idle range and set point temperatures



① Temperature in °F/°C, range: 14.0 to 122.0°F, –10.0 to 50.0°C
② Idle speed in %; range: 0 to 100 %

If you need to connect more cooling elements than you have relays available and you have an unused variable stage, you can use it as an ON/OFF stage (for 115/230 VAC-powered equipment only).

◇ Set the idle speed to 100% and idle range to the temperature at which you want the stage to switch on/off.

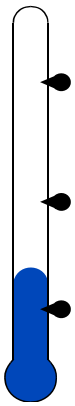
◇ You no longer have *variable* speed or power; you have either *full on* or *full off*, the same as a cooling relay. The *set point* and *differential* settings have no effect when you use a variable stage this way.

◇ The *set point* and *differential* must be greater than the *idle range*.

Variable heating stages

Programming variable heating stages means programming the following settings. For more information, read **Programming variable stages** on page 46.

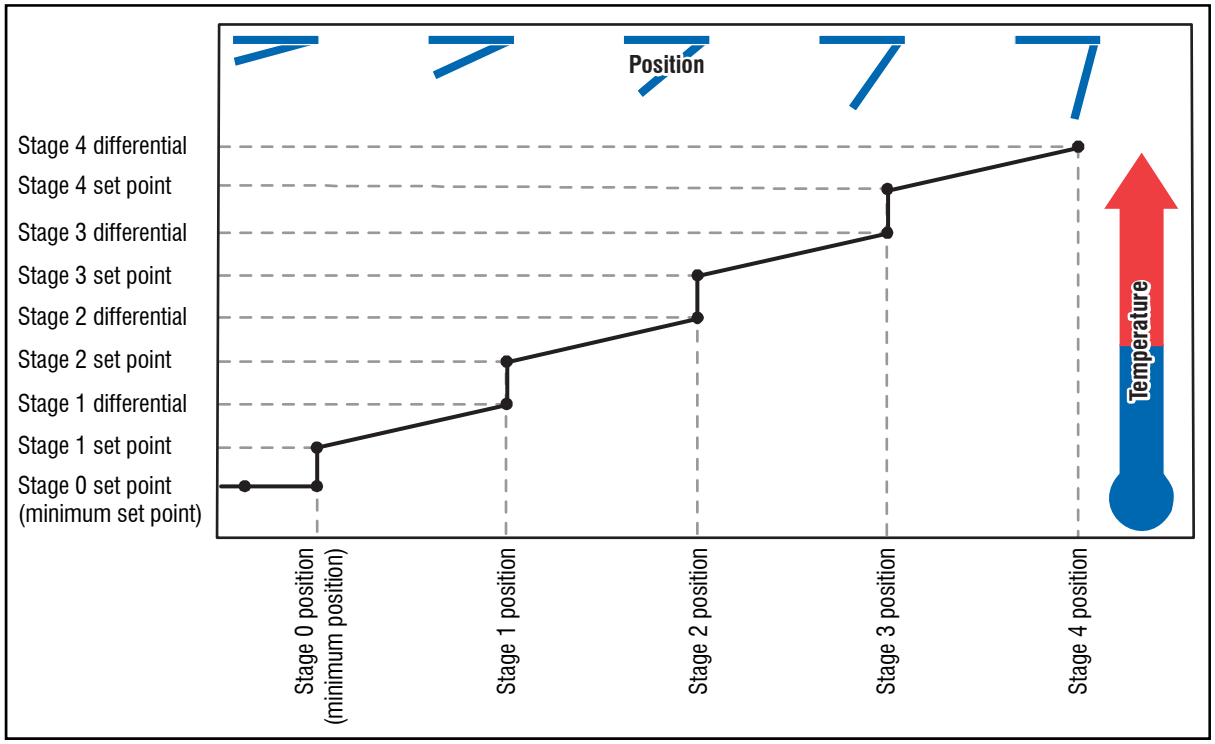
Information					
Name					Address
Building					Type
Setting	**VAR 1**	**VAR 2**	**VAR 3**	**VAR 4**	**Description**
Minimum output ②					◇ The output the heater is at when the temperature is between the heat cutoff and set point temperatures
Heat cutoff ①					◇ The heater is at minimum output when the temperature is between this value and the set point. ◇ The heater is off when the temperature is above this value.
Set point ①					◇ The heater is at minimum output when the temperature is between this value and the heat cutoff. ◇ Heater output increases when the temperature is between this value and the differential temperature.
Differential ①					◇ The heater is at full output when the temperature is at or below this value.



① Temperature in °F/°C, range: 14.0 to 122.0°F, –10.0 to 50.0°C
② Idle speed in %; range: 0 to 100 %

Actuator settings worksheet

Programming actuator relays means programming the following settings. For more information, read **Programming relays for actuator control** on page 49.



Information				
Name			Address	
Building			Type	
Setting	**ACT 1**		**ACT 2**	**Description**
Actuator jam alarm	Yes	No	Yes No	Select Ventilation displays and alarm message when it detects an actuator jam.
Minimum set point①				The actuator will close completely when the temperature is below this value.
Minimum position ②				The actuator is at this position when the temperature is between the minimum and stage 1 set points.
Stage 1 set point①				When the temperature is at this value, the actuator starts opening for stage 1.
Stage 1 differential ①				When the temperature is at this value, the actuator is at the stage 1 position.
Stage 1 position ②				When the temperature is at the differential value, the actuator is at this position.
Stage 2 set point①				When the temperature is at this value, the actuator starts opening for stage 2.
Stage 2 differential ①				When the temperature is at this value, the actuator is at the stage 2 position.
Stage 2 position ②				When the temperature is at the differential value, the actuator is at this position.
Stage 3 set point①				When the temperature is at this value, the actuator starts opening for stage 3.
Stage 3 differential ①				When the temperature is at this value, the actuator is at the stage 3 position.
Stage 3 position ②				When the temperature is at the differential value, the actuator is at this position.
Stage 4 set point①				When the temperature is at this value, the actuator starts opening for stage 4.
Stage 4 differential ①				When the temperature is at this value, the actuator is at the stage 4 position.
Stage 4 position ②				When the temperature is at the differential value, the actuator is at this position.

① Temperature in °F/°C, range: 14.0 to 122.0°F, –10.0 to 50.0°C
② Position in %, range: 0 to 100 %

Curtain worksheet

Programming curtain control relays means programming the following settings. For more information, read **Programming relays for curtain** control on page 53.

Information					
Name					Address
Building					Type
Setting	**Curtain 1**	**Curtain 2**	**Curtain 3**	**Curtain 4**	**Description**
Set point①					When the temperature is at the set point +/– half the idle band, the curtain holds its position.
Idle band②					
Open run③					If the temperature rises above the idle band, the curtain opens for the open run duration.
Open idle③					After the curtain opens for the open run duration, it holds its position for the open idle duration.
Close run③					If the temperature drops below the idle band, the curtain closes for the close run duration.
Close idle③					After the curtain closes for the close run duration, it holds its position for the close idle duration.

① Temperature in °F/°C, range: 14.0 to 122.0°F, –10.0 to 50.0°C
② Temperature in °F/°C, range: 1.0 to 10.0°F (0.6 to 6.0°F)
③ Duration in mm:ss, range: 5 seconds to 10 minutes, in 1 second increments

Heating and cooling elements worksheet

There are two types of heating and cooling element setups: *standard* and *duty cycle*. Programming a standard element means programming the temperature set point. Programming a duty cycle means programming the temperature set point and the ON and OFF durations.

For more information, read **Programming heating, cooling, and duty-cycle relays** on page 56.

Information										
Name					Address					
Building					Type					
Setting	**Relay 1**		**Relay 2**		**Relay 3**		**Relay 4**		**Relay 5**	
Configuration	Heat	Cool	Heat	Cool	Heat	Cool	Heat	Cool	Heat	Cool
Set point①										
On duration②	: :		: :		: :		: :		: :	
Off duration②	: :		: :		: :		: :		: :	
Setting	**Relay 6**		**Relay 7**		**Relay 8**		**Relay 9**			
Configuration	Heat	Cool	Heat	Cool	Heat	Cool	Heat	Cool		
Set point①										
On duration②	: :		: :		: :		: :			
Off duration②	: :		: :		: :		: :			

① Temperature in °F/°C, range: 14.0 to 122.0°F, –10.0 to 50.0°C
② For duty cycle relays, duration in h:mm:ss, range: 5 seconds to 5 hours, in 1 second increments

Timed events worksheet

Timed event relays control equipment such as lights that need to be switched on or off during certain times of the day. Setting up timed events means setting the *on* and *off* times. For every *on* time, there must be an *off* time.

For more information, read **Programming timed events** on page 59.

Information			
Building		Address	
Timed event settings		Type	
Timed event settings			
Relay number		Relay number	
On time	*Off* time	*On* time	*Off* time
:	:	:	:
:	:	:	:
:	:	:	:
:	:	:	:
:	:	:	:
:	:	:	:
:	:	:	:
:	:	:	:
:	:	:	:
:	:	:	:
:	:	:	:
:	:	:	:
:	:	:	:
:	:	:	:
:	:	:	:
:	:	:	:
For every *on* time, there must be an *off* time.			

Appendix B: Motor curves

Motor curves provide a way to proportionally increase or decrease speed, regardless of motor manufacturer.

For example, a Multifan motor might require 130 VAC to run at 50% RPM, while a Marathon motor might need 100 VAC to run at 50% RPM. Without a motor curve, the Multifan motor would run at a slower RPM than the Marathon motor at the same settings.

Selecting the correct motor curve allows you to set, for example, 50 on the control, and get much closer to 50% RPM on the motor then you would otherwise.

Motor curves are available only for variable AC cooling stages on PBx Power Blocks.

Choosing the correct motor curve

Use the following to determine the correct motor curve for your fan motor.

- If your fan motors are not running at approximately the correct RPM for the control settings, find your fan in the following table, and then select the motor curve for your fan manufacturer and model/specification.
- If your fan motor is not listed, use the default motor curve (curve 1). If the default motor curve does not operate your fan motor correctly, test the motor using manual override or test mode while selecting the different curves.

Manufacturer	Diameter (inches)	Model	Specifications	Recommended curve
Aerotech	09	AT09Z2	3350 RPM	2
	36	AT36Z1		4
Airstream	12	APP12F	1/4 HP, 1765 RPM	3
	36	APP36		4
Baldor	14		1/4 HP, 1700 RPM	4
	18		1/3 HP, 1700 RPM	4
	24		1/3 HP, 1140 RPM	4
Canarm	09	PLF9	1/5 HP	4
	12	PLF12		2
	14	PLF14		2
	16	PLF16	1/4 HP	2

Manufacturer	Diameter (inches)	Model	Specifications	Recommended curve
	18			2
Choretime (GE)	12		1/3 HP, 1140 RPM	1
Emerson	12		1/6 HP, 3400 RPM	2
Exafan	10		1/4 HP, 1700 RPM	2
	14		1/4 HP, 1700 RPM	2
	16		1/3 HP, 1700 RPM	2
	18		1/3 HP, 1700 RPM	2
	20		0.53 HP, 1700 RPM	2
	24		0.63 HP, 1700 RPM	2
Franklin	10		1/6 HP, 3450 RPM	2
Leeson	14		1/4 HP, 1625 RPM	2
	18		1/3 HP, 1625 RPM	2
	24		1/3 HP, 1140 RPM	2
	24		1/2 HP, 1625 RPM	2
	36		3/4 HP, 1625 RPM	2
Magnetek	12		1/6 HP, 3300 RPM	2
	12		1/6 HP, 1725 RPM	2
	36		1/2 HP, 840 RPM	4
Marathon	12		1/4 HP, 1625 RPM	2
	24		1/2 HP, 1625 RPM	2
Multifan	18	4E45	1600 RPM	4
	20	4E50		4

Appendix C: Glossary

actuator

A device that has a mechanical arm that extends and retracts. Actuators control elements that are not OFF or ON. Instead, they vary by a percentage. For example, inlets can be open various distances from 0 to 100 percent.

Typically, linear actuators connect directly to the inlets, or connect using cables and pulleys. Inlets are usually located in ceilings or walls. Inlet systems are often spring loaded to help close the inlets, or counter weighted to help open the inlets.

actuator set point	When the temperature is below the minimum set point, the actuator is closed. When the temperature rises to the minimum set point, the actuator moves to the minimum position. As the temperature rises, the actuator has four stages it moves through until it reaches its maximum open position. This lets you gradually open inlets instead of fully opening them when the temperature rises above a single set point. In other words, "when the temperature is here (stage set point), I want the actuator to start opening. When the temperature reaches here (stage differential), I want the actuator to be at this position (stage position) percent." For more information, read **Programming relays for actuator control** on page 49. See also *curtain set point* and *relay set point*.
alarm biasing	Alarm biasing gives you the ability to add a "buffer" to the *high alarm temperature* to help prevent the alarm from sounding on very hot days.
alarm condition	For the Ventilation module, there is an alarm condition when the low alarm is enabled and the temperature is lower than the low set point, or when the high alarm is enabled and the temperature is higher than the high set point. Other OMNI-Select modules have different alarms and alarm conditions. For more information, read the user manual for the specific modules.
bias offset	*Bias offset* is the number of degrees to add to the *high alarm temperature* when the outdoor temperature is higher than the alarm temperature. For more information, read **Temperature alarms and alarm biasing** on page 43
comma separated value (CSV)	CSV is a tabular data file consisting of fields stored as text and separated by commas. You can import CSV files into programs such as databases and spreadsheets.
curtain idle band	Curtain idle band is a temperature buffer around the curtain set point. When the temperature is within the idle band, the curtains hold their position. When the temperature is outside the band, the curtains cycle open or closed. Idle band is one of six curtain settings. For more information, read **Programming relays for curtain control** on page 53.

curtain set point	Curtain set point is the target temperature for the curtains. When the temperature is between the curtain set point and idle band limits, the curtains hold their position. Set point is one of six curtain settings. For more information, read **Programming relays for curtain control** on page 53. See also *actuator set point* and *relay set point*.
different method (DIF)	DIF is a mode of temperature setback. During the setback time DIF mode, OMNI-Select actively cools the area to try to lower the temperature to the new set point. For more information, read **Programming the temperature setback** on page 39.
differential (for actuators)	When the temperature reaches the differential temperature setting, the actuator reaches its final position for the stage. For more information, read **Programming relays for actuator control** on page 49.
differential (for variable stages)	For variable cooling stages, when the temperature is above the differential temperature setting, the fan runs at full speed. For variable heating stages, when the temperature is below the differential temperature setting, the heater is at full output. For more information, read **Programming variable stages** on page 46.
duty cycle	Duty cycle is a temperature-based method of controlling heating or cooling elements using 'on durations' and 'off durations'. For cooling elements, when the temperature is below the set point, the cooling element is off. When the temperature is above the set point, the element switches on for the 'on duration' and then off for the 'off duration'. For heating elements, when the temperature is above the set point, the heating element is off. When the temperature is below the set point, the element switches on for the 'on duration' and then off for the 'off duration'. For more information, read **Programming heating, cooling, and duty-cycle relays** on page 56.

empty room	Empty room mode is a power saving feature that allows you to put a Power Block into an 'idle state' and adjust all the settings, without having to change your normal, operational settings. Empty room mode has its own master set point, high and low temperature alarms, and high temperature biasing. In empty room mode, OMNI maintains minimum ventilation only; there is no active cooling, no ventilation curves, and no temperature setbacks. OMNI operates heating equipment only if needed to keep the temperature at or above the set point. For more information, read **Using normal and empty room modes** on page 31.
master set point	The master set point is the desired temperature for the room or zone. For more information, read **Programming the master set point** on page 33.
master set point curve	A master set point curve is an extension of the master set point concept. The "curve" automatically adjusts the master set point temperature over time. For more information, read **Programming ventilation curves** on page 35
growth curve	See *master set point curve* or *minimum ventilation curve*.
high temperature biasing	See *alarm biasing*.
HTML	Hypertext markup language (HTML) is one of the languages web browsers read and use to display information.
idle range	Idle range is a temperature setting for variable cooling stages. When the temperature is below the idle range, the fan is off. When the temperature rises above the idle range, the fan runs at the idle speed until the temperature rises to the "set point" temperature. For more information, read **Programming variable stages** on page 46.
idle speed	Idle speed is the percentage of full speed a variable stage fan is at when the temperature is between the idle range and set point temperatures. For more information, read **Programming variable stages** on page 46.
inlet actuator	See *actuator*.
inlets	Inlets are shutter-like devices mounted on a wall or ceiling that control airflow in a building.
minimum idle	See *idle speed*.

minimum position	Minimum position is the percentage an actuator will be open when the temperature is at the minimum set point. For more information, read **Programming relays for actuator control** on page 49.
minimum set point	Minimum set point is the temperature at which an actuator is at its minimum position. When the temperature is below the set point, the actuator closes completely. For more information, read **Programming relays for actuator control** on page 49.
minimum ventilation curve	A minimum ventilation curve automatically adjusts the idle speed for a variable speed fan over time. For more information, read **Programming ventilation curves** on page 35
PDF	Portable document format When you save an OMNI-Select preview report, it saves as a PDF file.
power save	Power save is the type of temperature setback that affects only heating equipment. For more information, read **Programming the temperature setback** on page 39.
relay	A relay is an electromagnetic switch that is either on (closed) or off (open).
relay set point	Set point is the temperature at which a relay stage switches on or off. For more information, read **Programming heating, cooling, and duty-cycle relays** on page 56. See also *actuator set point* and *curtain set point*.
temperature setback	Temperature setback automatically changes the temperature set point for specific periods during the day. There are two setback types, DIF and power save mode. For more information, read **Programming the temperature setback** on page 39.
timed event	A timed event switches equipment on or off at certain times of the day. For more information, read **Programming timed events** on page 59.
ventilation curve	See *master set point curve* or *minimum ventilation curve*.

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